
Appendix B

Adaptive Management

APPENDIX B

ADAPTIVE MANAGEMENT

Adaptive management is a decision process that promotes flexible resource management decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps with adjusting resource management directions as part of an iterative management process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a “trial and error” process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. On February 1, 2008, the Department of the Interior published its Adaptive Management Implementation Policy (522 DM 1). The Forest Service adaptive management direction is FSH 1909.12 Chapter 20, FSM 1920, and 36 CFR 219.6. The adaptive management strategy presented within this EIS complies with this policy and direction.

In relation to the Bureau of Land Management (BLM) and US Forest Service (Forest Service) National Greater Sage-Grouse Planning Strategy, adaptive management provides additional certainty for effectiveness of conservation when implemented in concert with the Greater Sage-Grouse (GRSG) conservation measures presented in the plan amendments. This adaptive management strategy is incorporated along with the conservation measures in the plan to ameliorate threats GRSG, thereby increasing the likelihood that the combined conservation measures are effective in reducing threats to that species. The following provides the BLM and Forest Service’s adaptive management strategy for the Utah Greater Sage-Grouse Proposed Land Use Plan Amendment (LUPA)/Final Environmental Impact Statement (EIS).

UTAH SUBREGIONAL ADAPTIVE MANAGEMENT STRATEGY

The Utah Subregional adaptive management strategy includes the identification of soft and hard triggers and a management approach for responding to those triggers. In the spring of 2014, a multi-agency Utah group coordinated to develop adaptive management triggers for GRSG populations in Utah. This group includes State of Utah Division of Wildlife Resources (UDWR), Utah Governor’s Public Lands Policy Coordination Office, US Fish and Wildlife Service (USFWS), Forest Service, and BLM. A biologist focus group, a subset of the Utah adaptive

management group, was tasked with reviewing GRSG monitoring data and determining what population and habitat triggers are appropriate given the natural cyclic variability observed in all GRSG populations.

BACKGROUND INFORMATION

Greater Sage-Grouse Population Change

As is discussed in the Proposed LUPA/FEIS, **Section 3.3**, GRSG populations across the range fluctuate cyclically. In Utah the cycle seems, generally, to follow a 10-year pattern. The exact reason for the cycle is currently unknown. However, various aspects (i.e., vital rates) of the GRSG's life cycle have been linked by past research to changes in environmental and habitat

Utah's GRSG populations will likely continue to fluctuate over the short-term and on their historic 10-year cycle. The general direction of the cycles, whether populations are trending up or down, is the critical conservation concern for GRSG. Connelly et al. (2004) showed that rangewide the trend was decreasing from the 1960s to the mid-1980s, hitting a low in the mid-1990s, but then stabilizing to the present. Certainly, if habitat loss and degradation occur within a population's habitat base the population would likely decline in succeeding years without habitat restoration and/or other management intervention. However, if the habitat base remains intact it is likely that the population will continue to fluctuate, but remain relatively stable in the long-term. GRSG require large landscapes of contiguous sagebrush habitat to carry out their life-cycle. Securing these large landscapes from further degradation and adding more habitat through restoration is the primary conservation action for GRSG.

Lek Count Data

When considering monitoring data there is always uncertainty, error, and statistical noise. GRSG lek (breeding ground) counts are not comprehensive in nature, but rather represent a sample of and index to the population. This uncertainty carries over into using lek counts to make decisions for implementing management actions. Any metric of population change (e.g., percent annual change, percent above or below 10-year average, etc.) includes the uncertainty that comes from sampling populations. Therefore, creating precise decision triggers based on lek data is inherently problematic, and should include a relatively large range of specific metrics and management options. However, much more certainty exists concerning the effect of habitat loss or degradation, and precise decision triggers would be much more reliable for habitat conservation purposes.

For GRSG, while some production data has been collected in various populations, the only data that has been consistently collected across the range of the species and within Utah for this species has been males attending leks. While male lek attendance has been the primary source of data collected and is used as an index of GRSG populations, it is critical that the strengths and weaknesses of lek counts be understood to appropriately evaluate how confidence in the data may vary. For instance, the number of males counted on leks can vary depending upon how many times the lek was counted in a spring (at least three times is recommended to increase the chances that the peak male lek attendance was observed), time of day (three counts conducted between 30 minutes before sunrise to 1 hour after sunrise), and the weather conditions (calm). Standardized lek counts have become more common practice recently. The lek count protocol

is based on lek attendance research (Jenni and Hartzler 1978; Emmons and Braun 1984; Connelly et al. 2003). In general, lek count protocol has become a priority in the last 15 years and adherence to the protocol increases the confidence in and comparability of the resulting data.

Early in the history of collecting lek count data in Utah, the likelihood that leks were known depended on two things: 1) the proximity of the lek to areas frequented by people during dawn (near roads or corrals); and 2) the size of the lek; the larger the lek, the more likely it was noticed. Therefore, the leks counted earliest in the history of GRSG monitoring in Utah were either large leks and/or easily accessible leks (e.g. near roads). In the last 20 years in Utah and throughout the west, efforts to count and find leks have increased substantially (though there is variation in the number of leks counted, up and down, each year). With these concerted efforts to find new leks, new and generally smaller leks were added to the list of known leks. Consequently, by adding primarily small leks to the overall state “average males per lek”, the state average males per lek decreases even though more birds and more leks are being counted. In addition, where graduate students have studied GRSG populations, new leks have been found as a result of the amount of time on the landscape and radio-telemetry information. From these increased efforts, the number of leks counted has increased from 14 leks in 1959, 99 leks in 1980, up to 362 leks in 2012 (2,485 percent increase) (UDWR 2009). Similarly, the total number of birds counted in a spring has increased, based on State of Utah data, from 451 males in 1959 to 3,231 males counted in 2012 (616 percent increase).

ADAPTIVE MANAGEMENT TRIGGERS

This overarching adaptive management strategy includes the identification of a two-tiered system of triggers (soft and hard) for both GRSG populations and habitat. These triggers are not specific to any particular project, but identify population and habitat thresholds which, if exceeded/tripped, would result in a change in how the BLM and Forest Service address management of GRSG in that area. Triggers have been based on the two key metrics that are regularly monitored: population declines and habitat loss.

Soft triggers represent an intermediate threshold indicating that management changes are needed to address habitat or population losses before they become severe. They represent a “caution” signal that changes outside the normal range of variation may be occurring. If a soft-trigger is tripped, monitoring data would be evaluated and management would be implemented to stop further declines.

Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from GRSG conservation objectives set forth in the BLM and Forest Service plans. The intent of a soft-trigger is to identify changes in management at a point where further losses could be avoided. There should be no expectation of hitting a hard trigger; if unforeseen circumstances occur that trip either a population or habitat hard trigger, more restrictive management will be required.

The changes in management required after a trigger is tripped are included below in the “Management Response” section. The following sections present the adaptive management triggers, organized first by the metric being addressed (population or habitat) and then by the associated soft and hard triggers.

Population Triggers

When evaluating population-based adaptive management triggers, this adaptive management strategy includes consideration of two aspects of population data to ensure that one set of data, if in error for any reason, would not unnecessarily trigger management changes. Population declines will be evaluated using the following two metrics:

- Population trends based on “trend leks,” and
- Population growth as indicated by Lambda (λ) (as described below) from one year to the next for monitoring associated with all leks within a priority habitat management area (PHMA).

Trend leks are either leks that have been surveyed consistently in the last 20 years or leks that provide spatial representation within PHMA. Twenty years was chosen as the appropriate time period to identify trend leks with consideration of the cyclic nature of GRSG populations, and to capture monitoring results during the period of time when lek counts were conducted more consistently, and when lek count protocol was more standardized. The Utah GRSG lek counts appear to have been in a low oscillation in the mid-1990s and again in the last few years (2011). During this same time period, standard lek count protocol use was increasing. Criteria for the trend leks are below:

- Starting with 1996, a lek that had > 1 male counted within one of 5 years between 1994-1998,
- Lek counts have occurred on 80 percent of the years since 1994 (16 years), **AND**
- Lek counts on 50 percent of the years are > 1 (8 of 16),
OR,
- A lek provides spatial representation (in the case of small populations, all leks may be included).

Lambda (λ) is the population change from a given Year 1 to the following Year 2 by dividing the total PHMA males counted in Year 2 by the total males counted in Year 1. If the result equals one (1), there was no change in the population level. A lambda that exceeds one (> 1) means the population is growing. A lambda that is less than one (< 1) indicates a declining population. To generate a consistent and comparable number, lambda can only be calculated on leks that are counted in consecutive years. This is to ensure that the increase in number of leks does not skew population data. This way, lambda can only be calculated for a lek if it is counted in two consecutive years. Some examples of calculating lambda are as follows:

- Males in Year 2/males counted in Year 1 = Lambda (λ)

Example A – No Change in Population: Assuming in 2000, the total males counted on leks in PHMA is 350 and in 2001, on the same leks counted in 2000, the total males counted are 350.

- $350/350 = 1$; since λ is 1, the population is unchanged.

Example B: Increasing Population: Assuming in 2000, the total males counted on leks in PHMA is 350 males and in 2001, on the same leks counted in 2000, the total males counted are 430.

- $430/350 = 1.23$; since λ is > 1 , the population is increasing.

Example C: Decreasing Population: Assuming in 2000, the total males counted on leks in PHMA is 350 males and in 2001, on the same leks counted in 2000, the total males counted are 280.

- $280/350 = 0.8$; since λ is < 1 , the population is decreasing.

Multiple population triggers were established to account for different potential population trends for which management and monitoring should respond. This includes triggers to address rapid short-term declines in a population, as well as persistent long-term decreases of both trend leks or all monitored leks (using $\lambda - 1$).

Population Soft Triggers

A population soft trigger would be met in PHMA if any one of 1a, 1b, 1c, or 1d are met, AND number 2 is also met:

- 1a) 4 consecutive years of 10 percent or greater annual decline in average males per lek in each year, based on “trend leks”; **OR**
- 1b) 6 consecutive years of declining average males per lek in each year, based on “trend leks”; **OR**
- 1c) 40 percent or greater decline in average males per lek in any single year, based on “trend leks”; **OR**
- 1d) 50 percent or greater decline in average males per lek in a 4 consecutive year period, based on “trend leks”;
AND
- 2) λ of less than 1 in 4 consecutive years, based on all leks in the PHMA. Using criteria 1c, the 40 percent decline in a single year may occur at any point of the four year λ monitoring window (year one, two, three or four).

For PHMA in the Ibapah and Hamlin Valley population areas, if a GRSG population adaptive management trigger (hard or soft) from a Nevada LUP is met on GRSG habitat in Nevada that is adjacent to the Ibapah or Hamlin Valley PHMA, a soft trigger would be met for the Utah areas, regardless of whether the above criteria have been met or not.

The management to be applied if the soft trigger criteria are met is identified below under the Management Response header. The intent of the population soft trigger is to identify changes to population trends and adjust management before a hard trigger is met.

Population Hard Triggers

A population hard trigger would be met in PHMA if any one of the following criteria (a-d) is identified through monitoring:

Short term Decline

- a) 4 consecutive years of 20 percent or greater annual decline in average males per lek in each year, based on “trend leks”; **OR**
- b) average males per lek, based on trend leks, drops 75 percent below the 10-year rolling average males per lek in any single year (not a 75 percent decrease, but a decline under 75 percent of the 10-year rolling average); **OR**

Long term Decline

- c) Lambda of less than 1 in 6 consecutive years, based on all leks within the PHMA; **OR**
- d) Lambda of less than 1 in 8 years of a 10 year window, based on all leks within the PHMA.

The management to be applied if the hard trigger criteria are met is identified below under the Management Response header. Any change in management would only apply to the PHMA where the trigger is tripped.

Habitat Triggers

The adaptive management approach also includes triggers based on GRSG habitat. Habitat quality is addressed by adherence to the objectives contained in the plan amendment. The adaptive management triggers for habitat is based on the availability of habitat within PHMA, measured using a percent of habitat loss from a baseline of available GRSG habitat at the signing of the final plan amendments.

Available habitat will be mapped within each PHMA using available information such as vegetation data from satellite imagery (e.g., reGAP, LANDFIRE), local monitoring, soils data, etc. As additional information is made available in the future it can be used to refine the baseline habitat areas that existed at the point the plan amendments are finalized (e.g., removing areas of high juniper density, cliffs, salt-desert scrublands). However, any such changes should reflect habitat as it occurred at the signing of the plan amendments and not reflect changes to habitat from that time. Changes from the baseline acreage could occur through either the addition of habitat (e.g., juniper reduction projects) or reduction of habitat (e.g., wildfire). In either case, the percentages identified in the triggers are generated by comparing the availability of habitat at a point in time to the acres of habitat available at the signing of the plan amendments.

For both soft and hard triggers, nesting areas will be delineated using lek buffers based on published peer-reviewed data, unless local nesting areas have been specifically mapped by BLM and Forest Service and UDWR biologists using telemetry or other methods with appropriate sampling across the population. Wintering areas will be identified using UDWR mapping, in coordination with BLM and Forest Service biologists.

Habitat Soft Triggers

A habitat soft trigger would be met in PHMA if one of the following criteria is identified through monitoring:

- a) 10 percent loss of total GRS habitat in PHMA; **OR**
- b) 10 percent loss of habitat within nesting areas in PHMA; **OR**
- c) 5 percent loss of habitat within UDWR mapped wintering areas in PHMA; **OR**
- d) any one fire that burns 5 percent of total GRS habitat in PHMA.

For PHMA in the Ibapah and Hamlin Valley population areas, if a GRS habitat adaptive management trigger (hard or soft) from a Nevada LUP is met on GRS habitat in Nevada that is adjacent to the Ibapah or Hamlin Valley PHMA, a soft trigger would be met for the Utah areas, regardless of whether the above criteria have been met or not.

The management to be applied if the soft trigger criteria are met is identified below under the Management Response header. The intent of the population soft trigger is to identify decreases in the availability of GRS habitat and adjust management before a hard trigger is met.

Habitat Hard Triggers

- a) 20 percent loss of total GRS habitat in PHMA; **OR**
- b) 20 percent loss of habitat within nesting areas in PHMA; **OR**
- c) 20 percent loss of habitat within UDWR mapped wintering areas in PHMA.

The management to be applied if the hard trigger criteria are met is identified below under the Management Response header. Any change in management would only apply to the PHMA where the trigger is tripped.

MANAGEMENT RESPONSE

To be successful, an adaptive management strategy couples a change in management direction to an identified change in resource condition (e.g., meeting an identified trigger). The type of management response would vary whether a soft trigger is met versus a hard trigger. The larger deviation from natural variation associated with a hard trigger would necessarily correspond with a greater change in management.

Ideally, the adaptive change in management is targeted to respond/resolve the cause of the observed change in resource condition. A causal factor may be associated with one of the threats the USFWS identified in its 2010 listing determination, though additional monitoring information and research may also identify other causes that could result in reaching population or habitat triggers. It is also important to note that while one or more factors may be associated with a habitat or population decline, directly attributing a change to a specific cause or causes may not be possible. The complexity of some interactions may make it difficult to establish a direct cause-and-effect relationship for a specific cause or causes. Many factors have been suggested as affecting GRS populations and habitats throughout the species' range. These factors can interact in numerous potential complex relationships, making the identification of "the" specific cause or causes difficult. It can be difficult to separate proximate factors from

ultimate factors leading to population declines. Further, GRSG populations that use habitat owned or administered by multiple jurisdictions (e.g., private, state, tribal, or other federal) could result in causes of population or habitat declines that are not able to be ameliorated by the BLM and Forest Service.

If direct cause or causes cannot be identified, the change in management may need to address multiple threats that were identified in the area where the trigger was been met in order to alter a negative trend. Absence of a clear cause is not justification to not take some action to reverse a trend.

Management Response to Meeting Soft Triggers

Upon an annual review of monitoring data, if it is apparent that soft trigger criteria have been met for an area (see Spatial Scale discussion below) the BLM and Forest Service will determine if there is a specific cause or causes that are contributing to the decline. In completing this evaluation, the BLM and Forest Service will coordinate with GRSG biologists from multiple agencies including the USFWS, NRCS, and UDWR. Through this coordination, the BLM and Forest Service will review available national, state-wide, and local data to determine if there is additional information that could identify the cause/causes of the declines. The BLM and Forest Service will also coordinate with field office/district and state agency specialists and local GRSG working groups to identify additional information that could assist in identifying the cause/causes.

If it is determined that the decline is related to a natural population variation, no specific management actions would be required. However, if BLM and Forest Service management actions are determined to cause or contribute to the decline, the BLM and Forest Service manager would apply measures within their implementation-level discretion to mitigate the decline of populations and/or habitats to the area where the trigger has been met. These measures would apply more conservative or restrictive implementation conservation conditions, terms, or decisions within the agencies' discretion to mitigate the decline of populations and/or habitats. If identified, the management measures should address the specific causal factor(s) that resulted in the decline, with consideration of local knowledge and conditions.

Responses to soft triggers may require the adjustment of future project level/plan implementation activities in the short- or long-term, as consistent with the individual site-specific NEPA analyses. Soft trigger responses can come in the form of terms, conditions, design features, BMPs, or site specific mitigation measures. Examples of soft trigger responses could include, but are not limited to:

- Extending seasonal restrictions for seasonal surface disturbing activities (provided as stipulations to a right-of-way grant or a condition of approval to an oil and gas lease),
- Reprioritizing wild horse and burro gathers;
- Applying sequential development after reclamation;
- Temporary area closures related to travel management; (2-year maximum);
- Modifying seasons of use for livestock grazing through annual permit authorizations; and/or

- Applying additional restrictions on discretionary activities, or reject the authorization if mitigation criteria cannot be met.

It is expected that monitoring and management in response to soft-triggers should preclude tripping a “hard” trigger, which signals more severe habitat loss or population declines.

Management Response to Meeting Hard Triggers

Hard triggers represent a threshold indicating that immediate action is necessary to stop a severe deviation from GRSG conservation objectives set forth in the BLM and Forest Service plans. As such, the Proposed LUPA/Final EIS includes a “hard-wired” plan-level response; that is, it provides that, upon reaching the trigger, a more restrictive alternative, or an appropriate component of a more restrictive alternative analyzed in the EIS will be implemented without further action by the BLM and Forest Service in the area where the trigger has been met. Specific “hard-wired” changes in management are identified in **Table B.1**, Specific Management Responses. This table also identifies which decision from the BLM Proposed Plan and Forest Service Proposed Plan would be changed.

In addition to the specific changes identified in **Table B.1**, the BLM and Forest Service will review available and pertinent data, in coordination GRSG biologists from multiple agencies including UDWR, USFWS, and NRCS, to determine the causal factor(s) and implement a corrective strategy in the area where the trigger has been met. The corrective strategy would include the changes identified in **Table B.1**, and could also include the need to amend or revise the RMP/LRMP to address the situation and modify management accordingly.

Table B.1
Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
Sage-Grouse Management	If a hard-trigger is tripped in the Sheeprocks Population Area, adopt the PHMA boundary from Alternative B and apply management as described in the Proposed Plan, except as modified below.	Modify MA-GRSG-I specific to Sheeprocks	Not applicable	The Alternative B PHMA boundary was analyzed in the DEIS (463,100 acres). There are no National Forest System lands within the Sheeprocks Population Area, therefore the Forest Service does not have a proposed management action for this area.
	PHMA within a biologically significant unit (BSU) where a soft trigger has been reached would be the top priority for habitat improvement and	Adjust: MA-VEG-I MA-FIRE-I MA-GRSG-	GRSG-GRSGH-ST-001 GRSG-FM-	Prioritizing fuels reduction treatments was a component of MA-

Table B.1
Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
	restoration projects and for fuels reduction treatments. Areas within and adjacent to PHMA within a BSU where a hard trigger has been reached would be the top priority for regional mitigation habitat restoration and fuels reduction treatments.	3A to address specific area	GL-003 GRSG-GEN-ST-002	FIRE-I under Alternative D in the DEIS. Prioritizing restoration based on environmental variables and in seasonal habitats that are thought to be limiting to GRSG distribution and/or abundance was a component of MA-VEG-I under Alternatives B, C, and D in the DEIS. Prioritizing mitigation sites, projects, and measures was a component of the Regional Mitigation Strategy in the DEIS (Appendix F, Page F-2, Item 5).
	Collaborate with applicable government entities to implement intensive programs to reduce populations of GRSG predators (e.g., ravens, red fox, badgers, raccoons, skunks, raptors), focusing on area-specific predators to provide GRSG populations the best opportunity to recover while improving habitat conditions.	Adjust MA-GRSG-3D to focus on area-specific predators	Not applicable	Applying activities and practices to reduce opportunities for and decrease the effectiveness of GRSG predators was a component of MA-GRSG-6 under Alternatives D and E in the DEIS. The Forest Service Wyoming proposed plan includes a similar management action.
Vegetation Management	PHMA, within a BSU, would be the top priority for regional mitigation, habitat restoration and fuels reduction treatments.	Adjust: MA-GRSG-3A MA-VEG-I MA-FIRE-I to address	GRSG-GRSGH-ST-001 GRSG-FM-GL-003 GRSG-GEN-	Prioritizing mitigation sites, projects, and measures was a component of the Regional Mitigation

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Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
		specific area	ST-002	Strategy in the DEIS (Appendix F, Page F-2, Item 5). Prioritizing fuels reduction treatments was a component of MA-FIRE-I under Alternative D in the DEIS. Prioritizing restoration based on environmental variables and in seasonal habitats that are thought to be limiting to GRSG distribution and/or abundance was a component of MA-VEG-I under Alternatives B, C, and D in the DEIS.
Wild Horse and Burro Management	<p>Initiate emergency gathers to reduce wild horse and burro populations within affected area to low end of AML, subject to funding and holding space availability.</p> <p>If the population is within AML and the area does not meet GRSG habitat objectives, reduce AML for the HMA within the affected area up to 25 percent to facilitate meeting habitat objectives.</p>	Adjust: MA-WHB-7 MA-WHB-3 MA-WHB-4 to address specific area	Not applicable	<p>Prioritizing gathers in PHMA to prevent catastrophic environmental issues was a component of MA-WHB-I under Alternatives B, C, and D in the DEIS. Reducing AML by 25% in GRSG occupied habitat to reduce grazing pressure on vegetation was analyzed under Alternative C I (MA-WHB-I) in the DEIS.</p> <p>The Forest Service does not manage any WHB populations.</p>

Table B.1
Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
Wildland Fire Management	Reassess GRSG habitat needs to determine if priorities for at risk habitats, fuels management areas, preparedness, suppression and restoration have changed.	Adjust MA-FIRE-1 to address specific area	GRSG-GRSGH-ST-001	Assessments to prioritize at risk habitats and identify fuels management, preparedness, suppression and restoration priorities was analyzed as a component of MA-FIRE-1 under Alternative D in the DEIS.
Livestock Grazing	<p>In areas where a soft trigger was met, prioritize the completion of rangeland health assessments to determine if the area is meeting Utah's Rangeland Health Standards and is achieving the GRSG habitat objectives (Objective GRSG-2). Focus monitoring and management activities on allotments found not to be achieving Utah's Rangeland Health Standards and that have the best opportunities for conserving, enhancing or restoring habitat for GRSG.</p> <p>For areas not achieving the GRSG habitat objectives (Objective GRSG-2), apply one or more of the adjustments to livestock grazing from MA-GRA-6.</p>	Adjust: MA-GRA-4 MA-GRA-5 to address specific area	GRSG-LG-GL-001 GRSG-LG-GL-002	Prioritizing completion of land health assessments was analyzed as a component of MA-GRA-4 under Alternatives B and C2. Focusing management activities on allotments found not to be achieving Utah's Rangeland Health Standards and that have the best opportunity for conserving, enhancing or restoring habitat for GRSG was a component of MA-GRA-4 under Alternative D. Applying adjustments or otherwise modifying to grazing management to help meet GRSG seasonal habitat objectives was a component of MA-GRA-8 under Alternatives B, C2, and D.

Table B.1
Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
Rights of Way – Existing Corridors	Retain the corridors as mapped, but limit the size of new lines within the corridors to same as existing structures, or not larger than 138kV.	Augment MA-LAR-2 MA-LAR-4 MA-LAR-8 with additional criteria	GRSG-LR-SUA-ST-007	Collocating new ROW/SUAs within existing corridors (as long as entire footprint of the proposed project can be completed within the existing disturbance) was a component of MA-LAR-3 analyzed under Alternative B in the DEIS.
Rights of Way – Outside of Corridors	Management of the affected BSU would change to exclude high voltage transmission lines (greater than or equal to 100kv) and major pipelines (greater than or equal to 24 inch). No change in management would be made to transmission lines under 100kv or pipelines less than 24 inches.	Augment MA-LAR-2 with additional criteria	GRSG-LR-SUA-GL-001	Designating PHMA (within 4 mi. of occupied lek) as exclusion for new above ground linear transmission lines and avoidance for new permanent underground/on-ground lines was a component of MA-LAR-2 analyzed under Alternative D in the DEIS.
Wind Energy Development	No change from Proposed Plan.	Not applicable	Not applicable	PHMA is already excluded from wind development therefore no additional restrictive response is available.
Industrial Solar	No change from Proposed Plan.	Not applicable	Not applicable	During development of the DEIS it was determined no existing or proposed solar development poses a threat to GRSG in the planning area.

Table B.1
Specific Management Responses

Program	Adaptive Management Response ¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
Comprehensive Travel and Transportation Management	<p>If travel management planning has not been completed within GRSG habitat, PHMA areas where the hard trigger was met would be the highest priority for future travel management planning efforts.</p> <p>If travel management has been completed within GRSG habitat in the PHMA where the hard trigger was met, re-evaluate designated routes to determine their effects on GRSG. If routes are found to be causing population-level impacts, revise their designation status to reduce the effect.</p>	Adjust: MA-TTM-4 MA-TTM-2 MA-TTM-5 MA-TTM-3 to address specific area	Not applicable	Completing travel management planning in Utah's top priority areas, minimizing impacts to have a neutral or positive effect on GRSG habitat, and adjusting route designations to avoid impacts to GRSG were similar conceptual components of MA-TTM-2, 3, 4, and 5 analyzed under Alternative D in the DEIS.
Fluid Minerals	No change from Proposed Plan.	Not applicable	Not applicable	In coordination with USFWS, it was determined that additional restrictions beyond existing plan level conservation measures (e.g., stipulations, 3 percent disturbance cap, RDFs, 1/640 acre density, lek buffers, noise, and seasonal restrictions) would be unlikely to elicit improvement.
Locatable Minerals	No change from Proposed Plan.	Not applicable	Not applicable	In coordination with USFWS, it was determined that additional restrictions would be unlikely to elicit improvement.

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Specific Management Responses

Program	Adaptive Management Response¹	Affected Decision Number		Where considered in the Draft LUPA/EIS (DEIS)
		BLM	Forest Service	
Salable Minerals	No change from Proposed Plan.	Not applicable	Not applicable	In coordination with USFWS, it was determined that additional restrictions would be unlikely to elicit improvement.
Nonenergy Leasable Minerals	No change from Proposed Plan.	Not applicable	Not applicable	In coordination with USFWS, it was determined that additional restrictions would be unlikely to elicit improvement.

¹Any change in management would only apply to the PHMA where the trigger is tripped. Unless otherwise noted as a soft trigger response, all Adaptive Management Responses would be implemented where a hard trigger is reached.

In addition to implementing the hard wired plan-level response, in the event that new scientific information becomes available demonstrating that the hard wired response would be insufficient to stop a severe deviation from GRSG conservation objectives set forth in the BLM and Forest Service plans, the BLM or Forest Service will immediately implement a formal directive akin to BLM Instruction Memorandum 2012-043 to protect GRSG and its habitat and to ensure that conservation options are not foreclosed in the area where the trigger has been met. To the extent that it is supported scientifically, this formal directive will be drawn from the range of alternatives analyzed in the development of the LUPA.

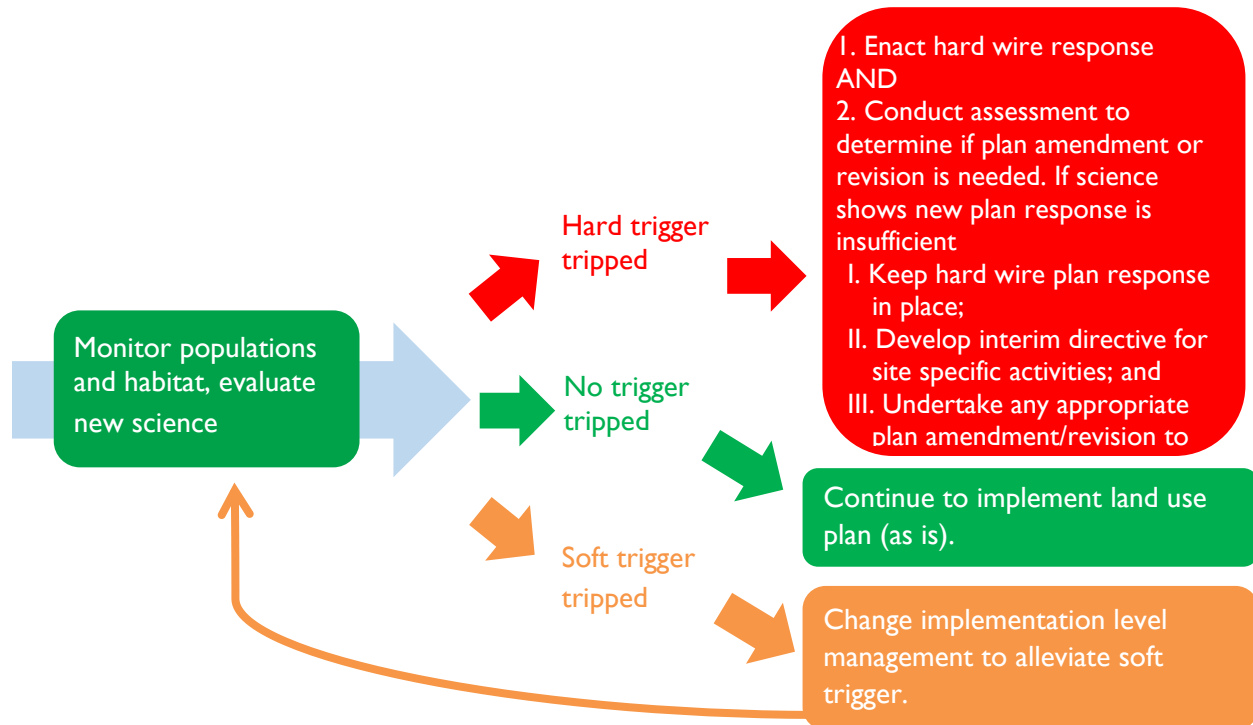
For those BSUs that are directly connected to BSUs in adjacent states (Box Elder, Hamlin Valley, Uintah, and Rich), if a hard trigger is reached on one of the connected BSUs outside of the Utah sub-region, the applicable WAFWA Management Zone Greater Sage-Grouse Conservation Team will convene to determine the causal factor and propose project level responses, as appropriate, and discuss further appropriate actions that could be applied. The team will also investigate the status of the hard triggers in other BSUs within the PAC and will recommend the appropriate plan response. Adoption of any further actions at the plan level may require initiating a plan amendment process.

MONITORING

Monitoring is a critical part of implementing adaptive management. Through monitoring, the agencies determine when a trigger has been met, as well as whether management actions taken, including adaptive responses, are effective in increasing GRSG habitat and populations. The

following image shows how monitoring information will be integrated into implementation of the adaptive management plan.

This EIS contains a Monitoring Framework Plan (**Appendix C**) that monitoring of several aspects of GRSG biological criteria and aspects of monitoring LUP effectiveness. The information collected through the Monitoring Framework Plan will be used by the BLM and Forest Service to determine when adaptive management hard and soft triggers are met.



The BLM and Forest Service will organize an adaptive management working group, inviting participation from USFWS, local governments, and UDWR. This group will annually review monitoring information related to GRSG populations and habitat availability to determine if an adaptive management trigger has been met.

The working group will evaluate GRSG population data collected by the UDWR's lek counts, as well as habitat information available from the BLM's National Operation Center. Habitat information available from the BLM National Operation Center is based on remotely sensed sagebrush vegetation collected as part of the LANDFIRE Existing Vegetation Type layer. Habitat information may be adjusted based on locally available vegetation data, if agreed upon by all adaptive management working group members. However, the baseline for determining the percent loss for the purposes of the adaptive management triggers must remain associated with a consistent vintage, namely the finalization of the RMP-decisions. It is also important that the vegetation data remain at a scale consistent with implementation of the adaptive management plan (BSUs), and remain at such a consistent scale over time.

SPATIAL SCALE

GRSG biologists, assigned to the multi-agency adaptive management working group, will assess population and habitat adaptive management triggers for distinct BSUs. The BSU is a geographical/spatial area that contains the relevant habitats which are used by GRSG. In Utah, the BLM and Forest Service have defined BSUs as the total PHMA area associated with a GRSG population area. These areas generally align with habitat areas within the State of Utah's Sage-Grouse Management Areas (SGMAs) with two adjustments. One adjustment includes some PHMA in the Carbon area that was not identified as an SGMA. Portions of the Anthro Mountain and West Tavaputs areas are combined with Emma Park area for adaptive management purposes. The other adjustment is the Emery population (Wildcat Knoll and Horn Mountain) that is combined with the Parker Mountain SGMA but will be considered separately because the population is small in size and effects to this population would be masked by what is going on in the much larger Parker SGMA. As a result, PHMA in the following areas will be monitored and evaluated for population and habitat adaptive management triggers: Box Elder, Rich, Uinta, Strawberry, Carbon, Emery, Parker, Panguitch, Bald Hills, Hamlin, Sheeprocks, and Ibapah. These areas generally represent population use areas within the sub-region.

As described in the Monitoring Framework Plan, habitat data can be collected at these BSU scales, and can be both aggregated up to the state-wide population, WAFWA Management Zone, or other reporting units. Similarly, more specific habitat delineation may be gathered identifying specific seasonal use patterns and even daily movements and preferences. However, in monitoring landscape changes in habitat and effects on GRSG populations, the interagency team of GRSG biologists identified the BSU scale as best capturing the needed metrics at a meaningful and consistent scale. The boundaries of the BSUs and other reporting units may be adjusted over time based on the understanding of local population interactions and climate variation.

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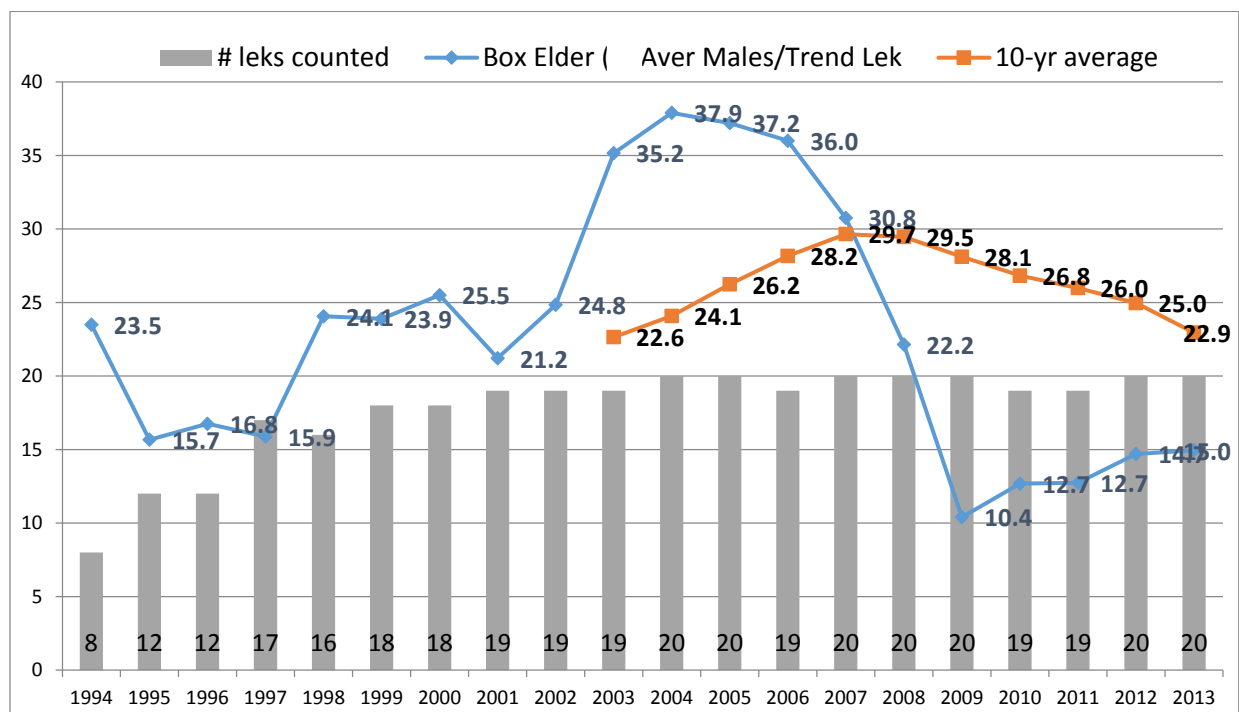
ATTACHMENT A - POPULATION TREND GRAPHS

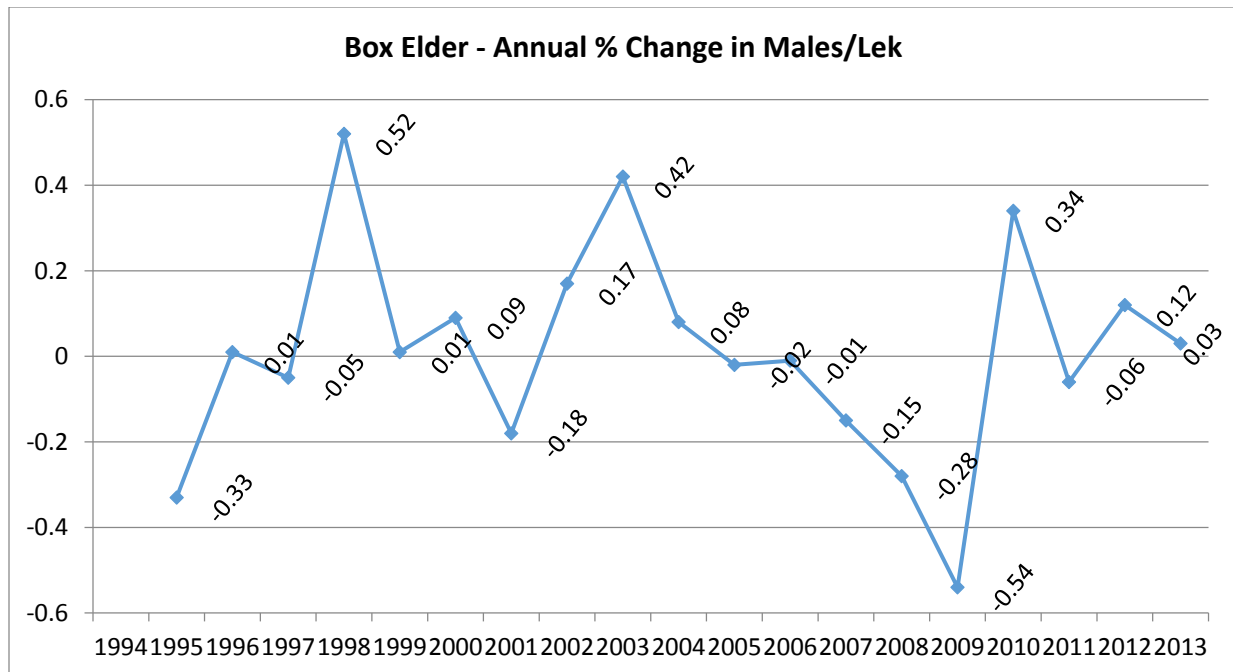
Explanation of Graphs

The following information is provided for the purposes of adaptive management, and identifies each GRSG population unit being considered specifically for adaptive management triggers. For each population, we list the leks that will be closely monitored for the population adaptive management triggers. The first graph represents the average males per trend lek (blue line) and the 10-year running average of males per lek for the trend leks (red line). The second graph is the change from year to year on the trend leks. If the number is < 0 , average males on trend leks have declined since the previous year. If it is > 0 , the average males on trend leks have increased since the previous year. The third graph is the Lambda for all the leks in the population, as a means of ensuring that the trend leks are representative of what is going on with the entire population. If Lambda is < 1 , the entire population declined from the previous year. If Lambda is > 1 , the entire population increased from the previous year.

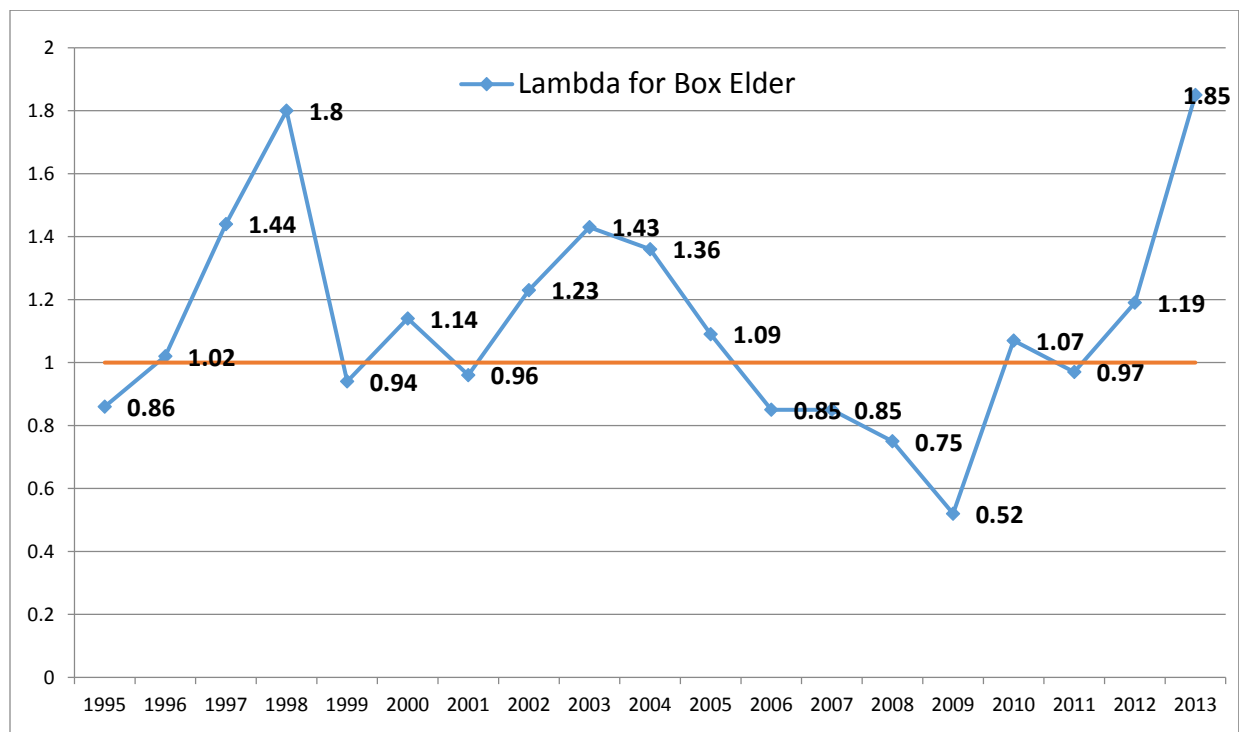
Box Elder

In this PHMA, 21 of 79 leks were identified as trend leks (Badger Flat, Cotton Thomas, Dove Creek Sign, Dove Creek Upper West, Dry Basin, Dry Canyon Mountain North, Goose Creek South, Hardister, Highway Cut, Keg Spring Turnoff, Lynn Reservoir North, Meadow Creek pass, Park Valley M53, Red Bank Spring, Sickie Spring, Warm Springs Road, Dakes Pass, with Cliff Reservoir, Middle Canyon, Ray Kimber Ranch, and Wildcat Knoll for spatial representation). In addition, some leks were clumped because they were previously reported as one number of strutting males but were split to reflect the exact location of the multiple strutting spots (Hardister leks, Red Bank Spring leks, and the Cotton Thomas/First leks).



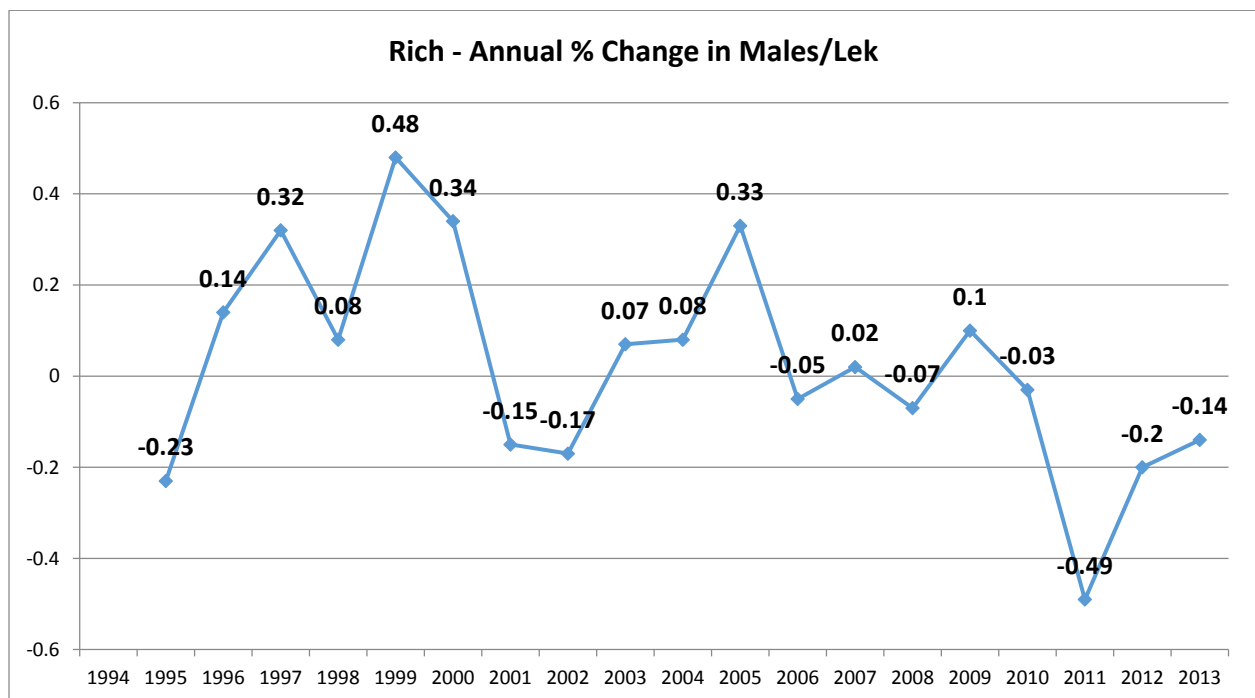
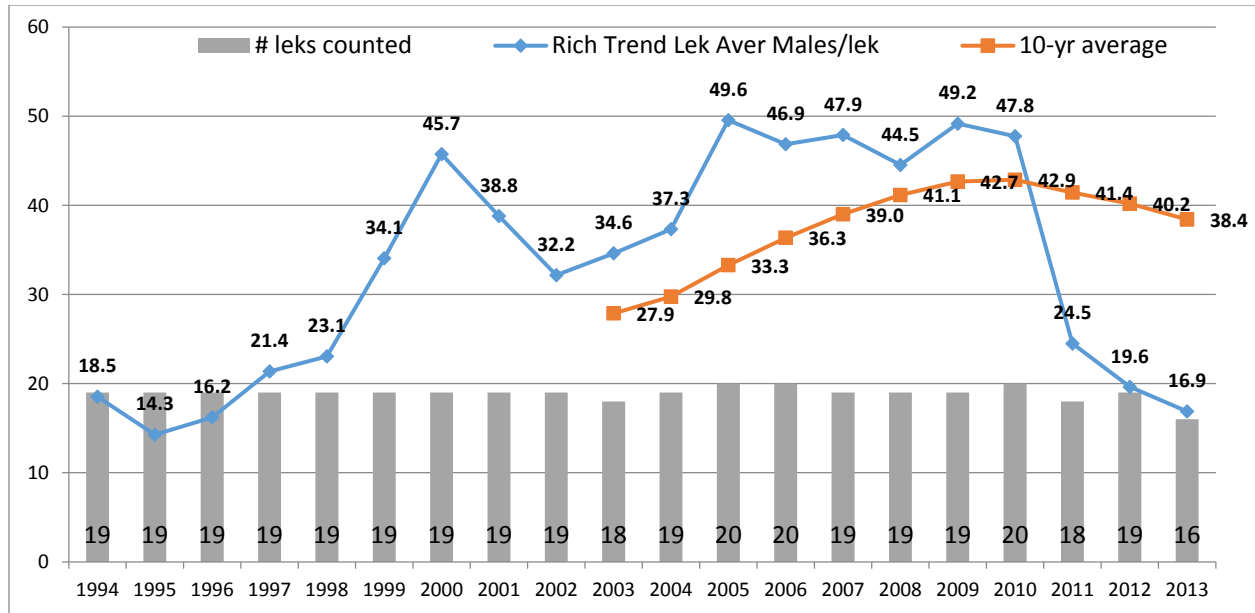


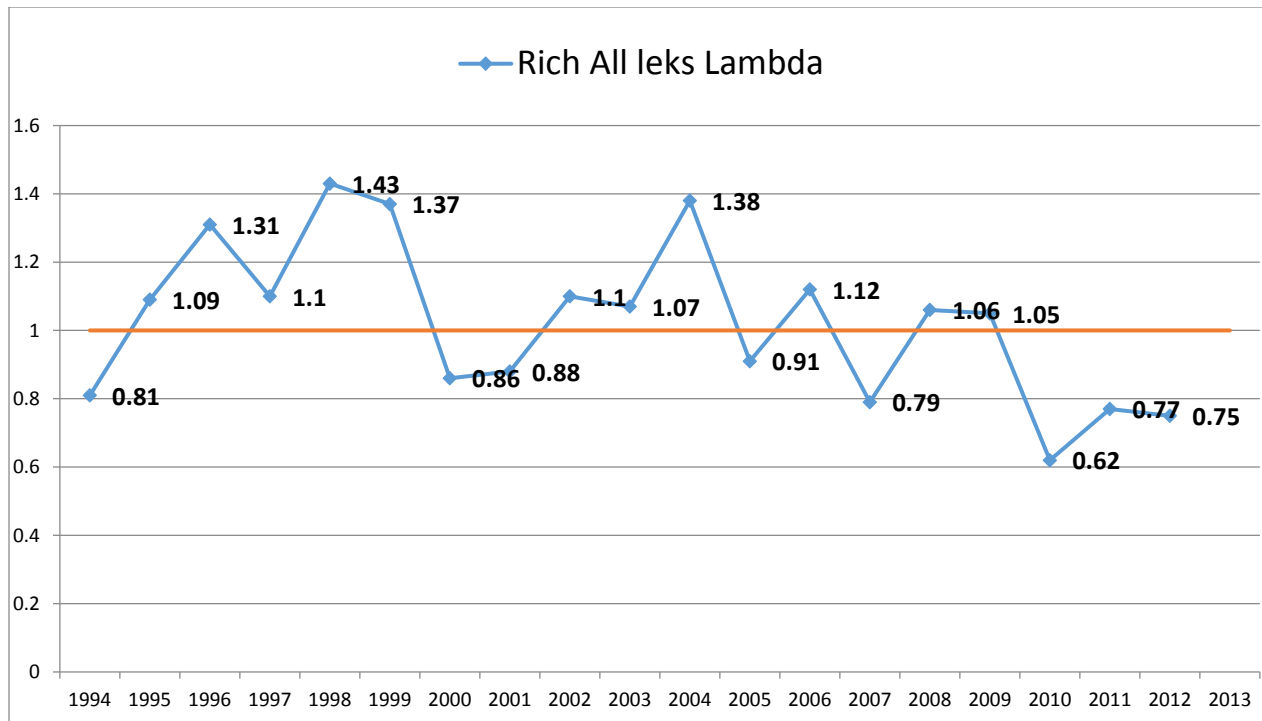
Note: Any time the annual change goes below 0, there is a decline in the population between years. Similarly, any time the annual change is above 0, that represents an increase between years.



Rich

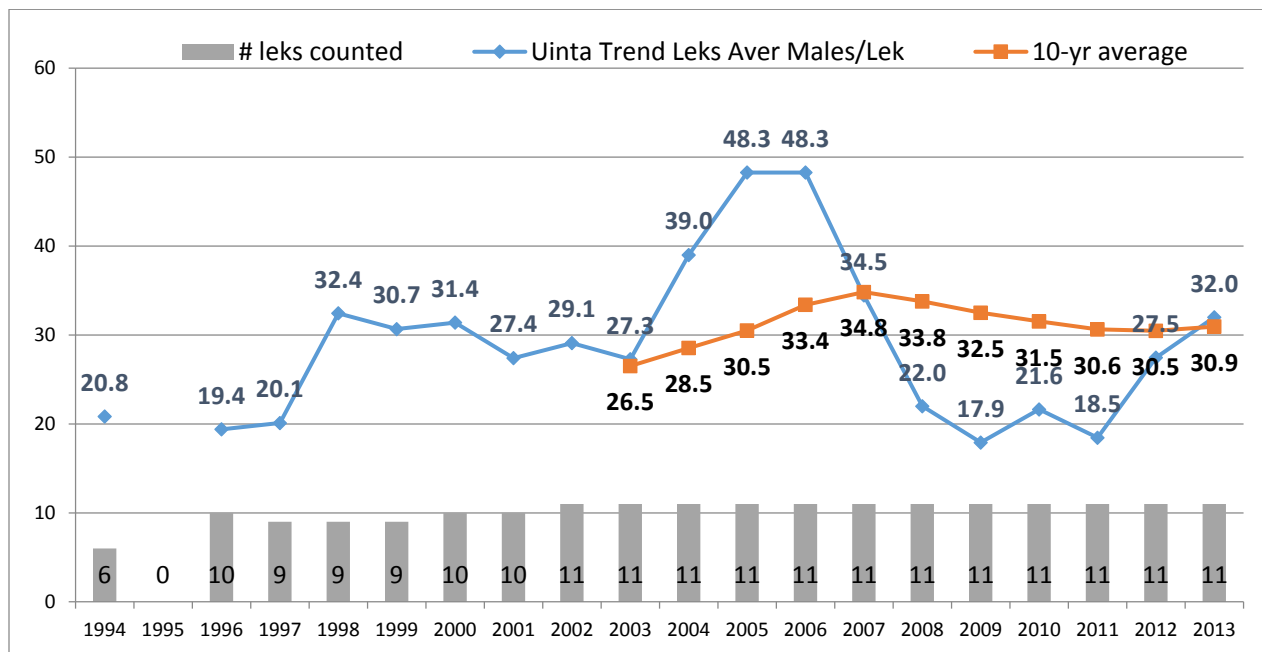
In this PHMA, 18 of 54 leks were identified as trend leks (Alkali Hollow, Black Tank, Cabin Hollow, Chicken Treatment, Dixon Hole, Dry Hollow North, Dry Hollow South, Hardware Plateau, Henefer Divide, Lake Ridge, McKay Hollow, Neponset, North Eden, Otter Creek, Six Mile, South Lake North, Spring Canyon North, Stacey Hollow and for spatial representation, Little Creek and Woodruff leks).

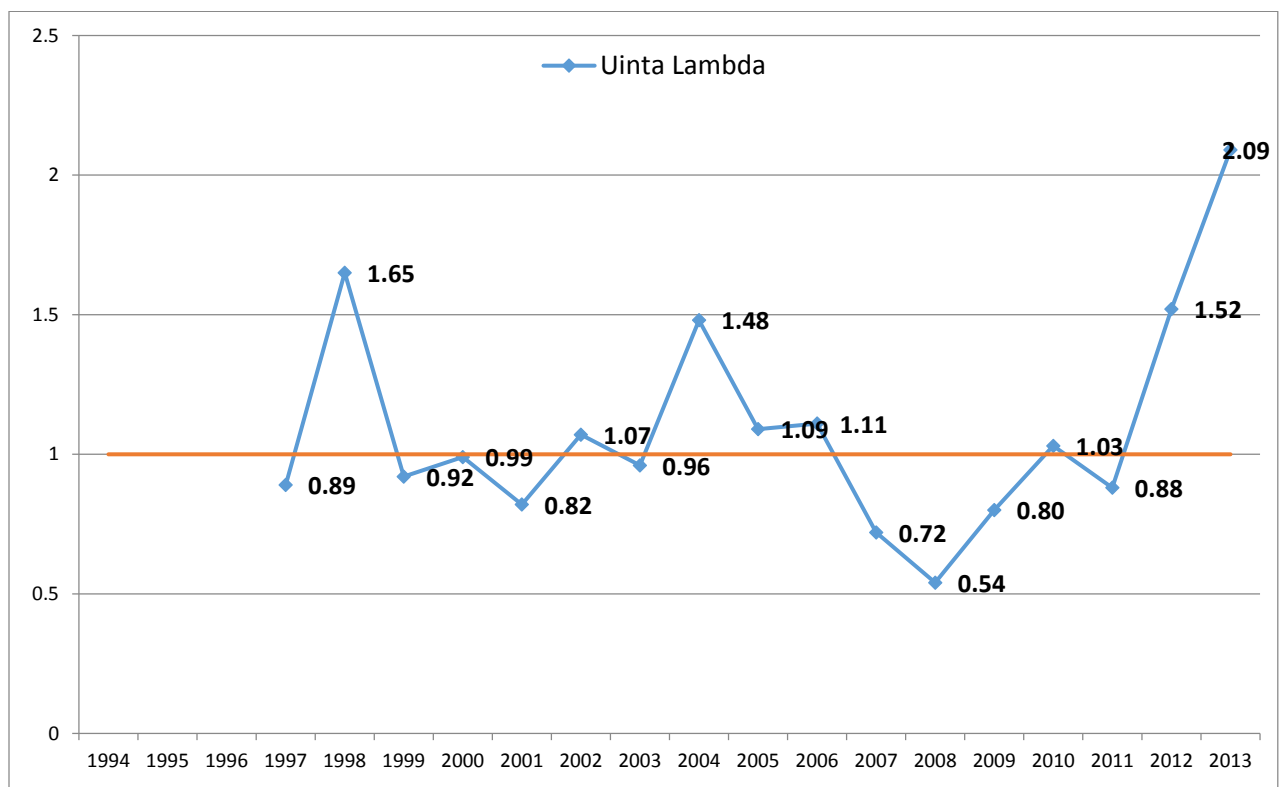
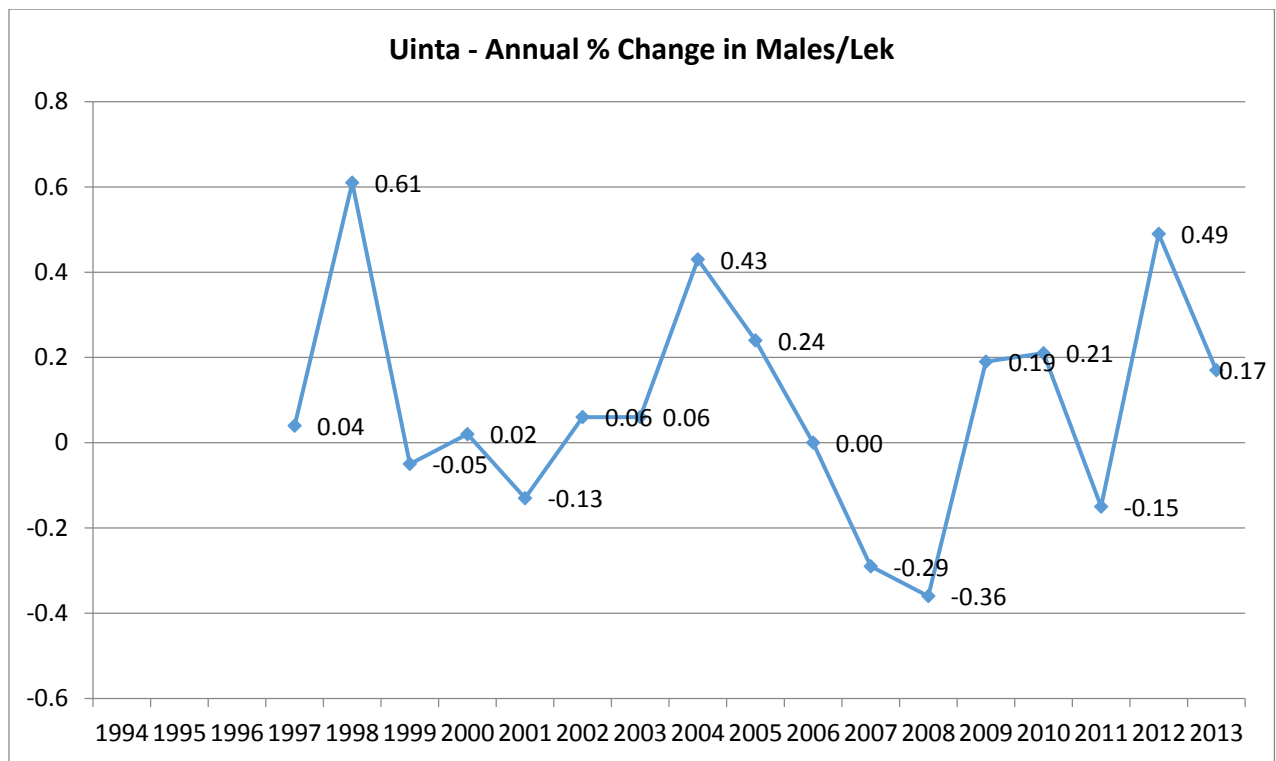




Uinta Basin

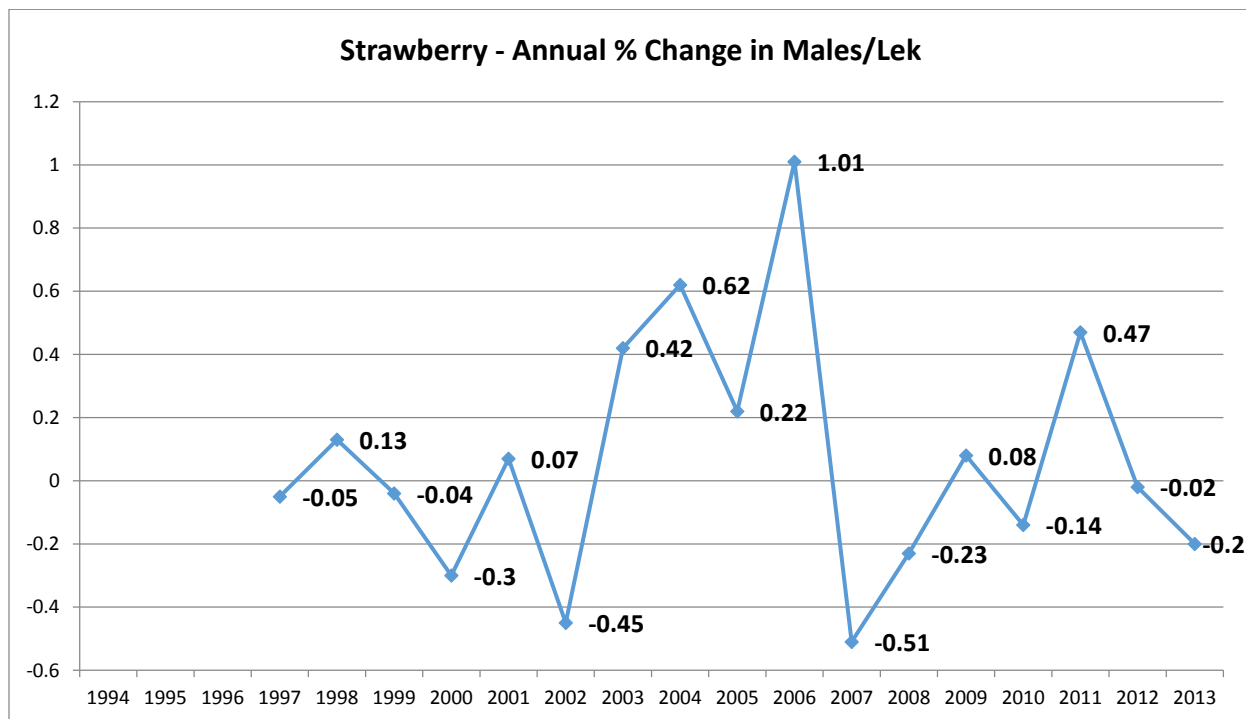
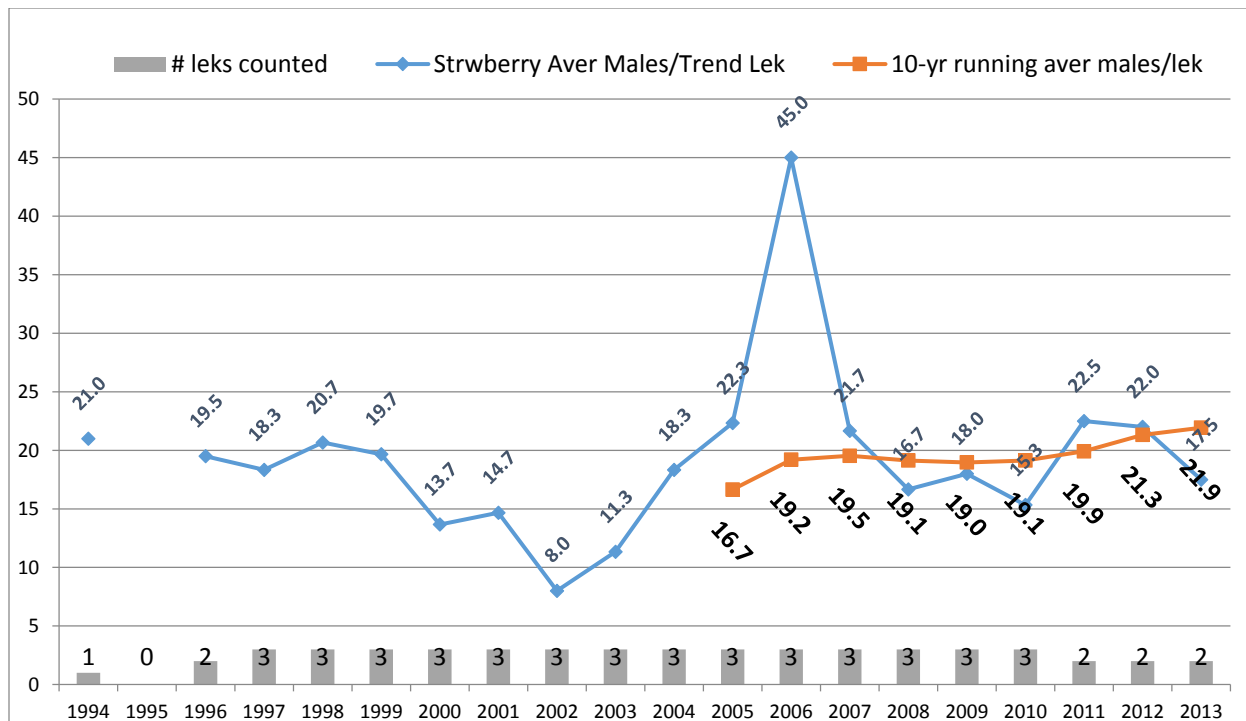
In this PHMA, 11 of 53 leks were identified as trend leks (Seedskadee, Blue Mountain, Goslin Mountain, Benchmark, Borens Salt Shed, Diamond Mountain Burn, Diamond Springs, Taylor Mountain Face, West McKeaknie, Red Narrows West, and Little Mountain South). These leks represent 2 of 6 leks in Three Corners/Browns Park area, 2 of 8 leks in Blue Mountain, 5 of 24 leks on Diamond Mountain, and 2 of 7 leks on Halfway Hollow.

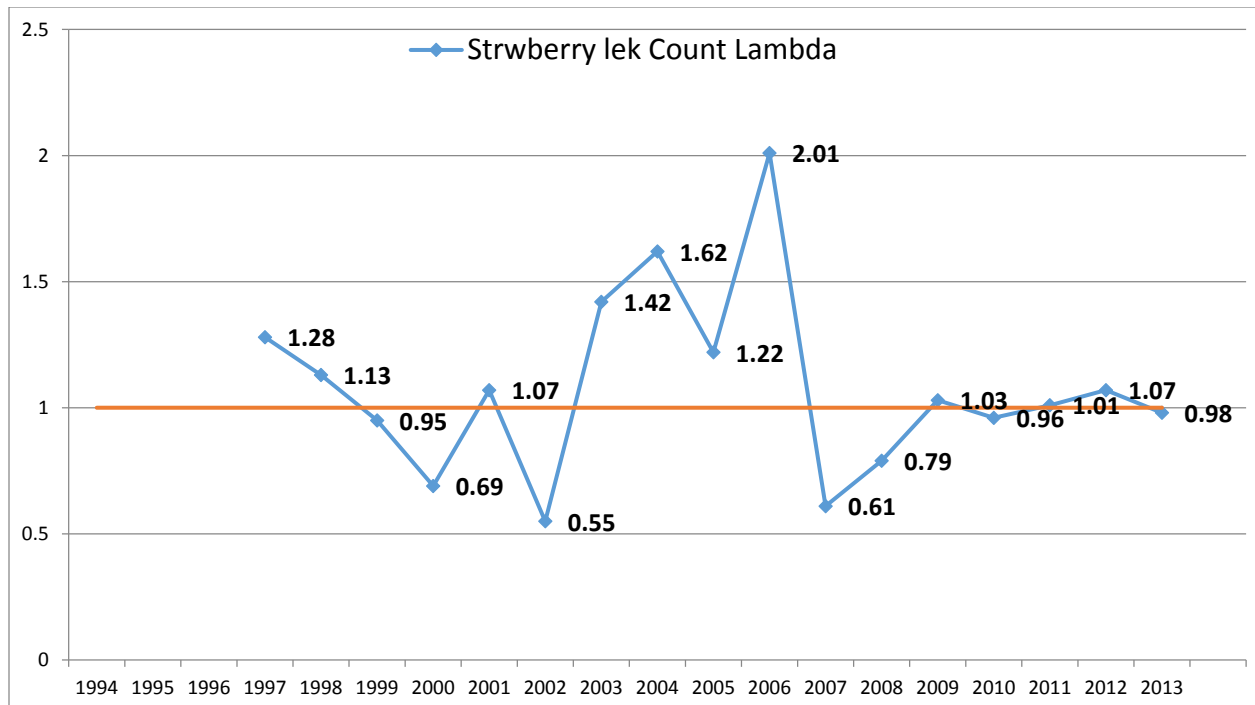




Strawberry-Fruitland

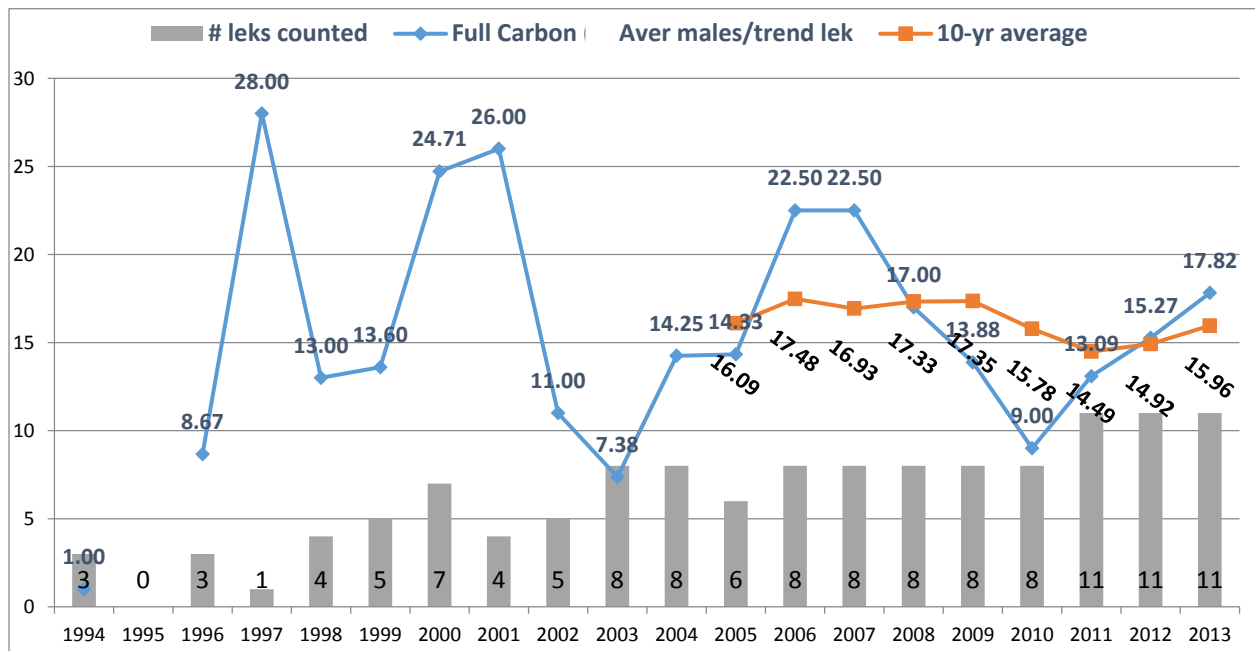
In this PHMA, 3 of 8 leks were identified as trend leks (Lower Red Creek, Road Hollow, and Saleratus Upper).

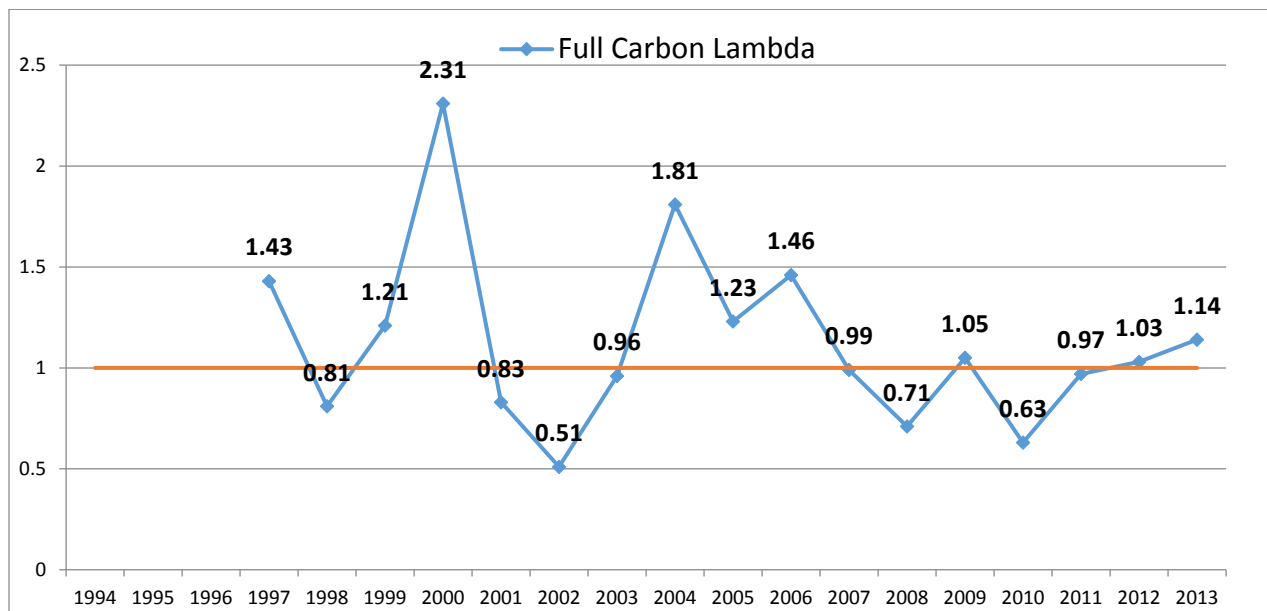
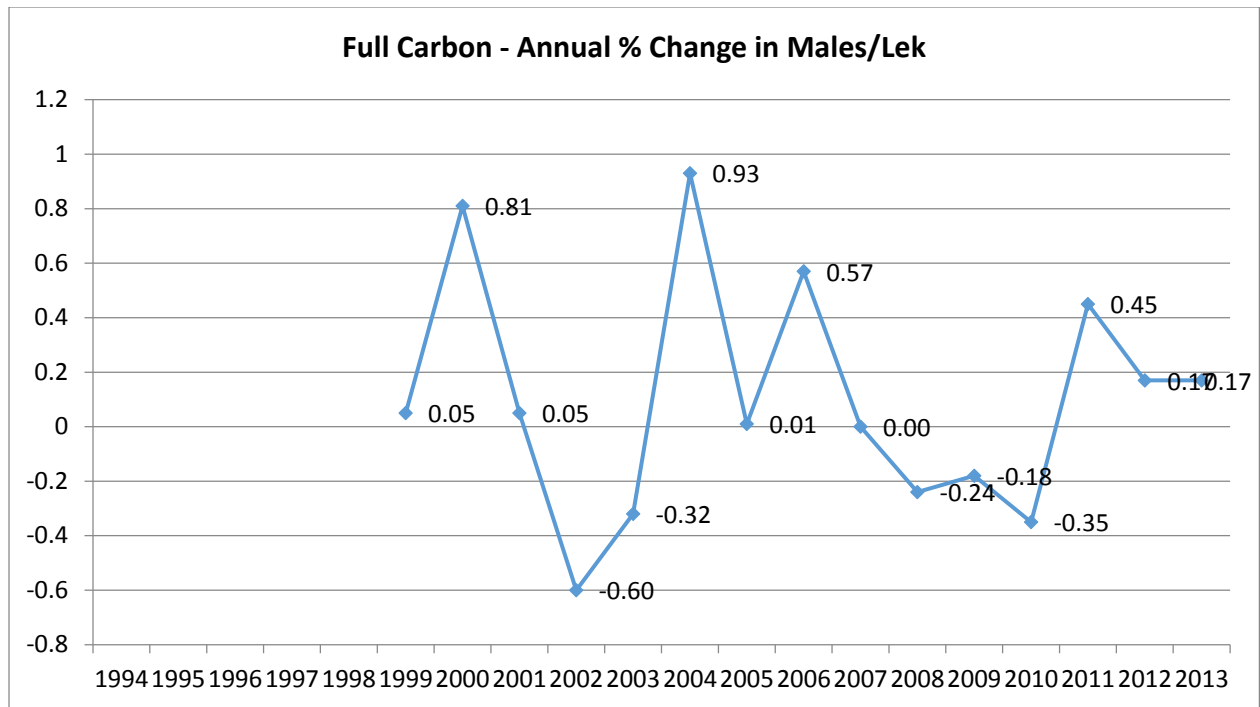




All Carbon (Emma Park, Anthro Mountain, and West Tavaputs)

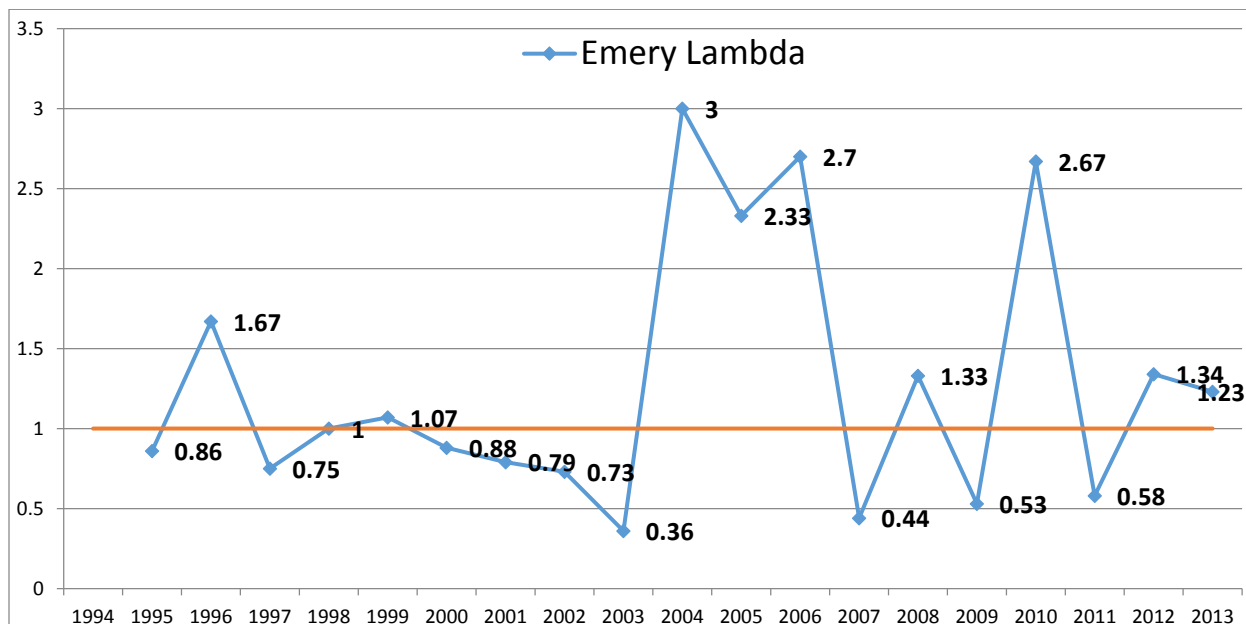
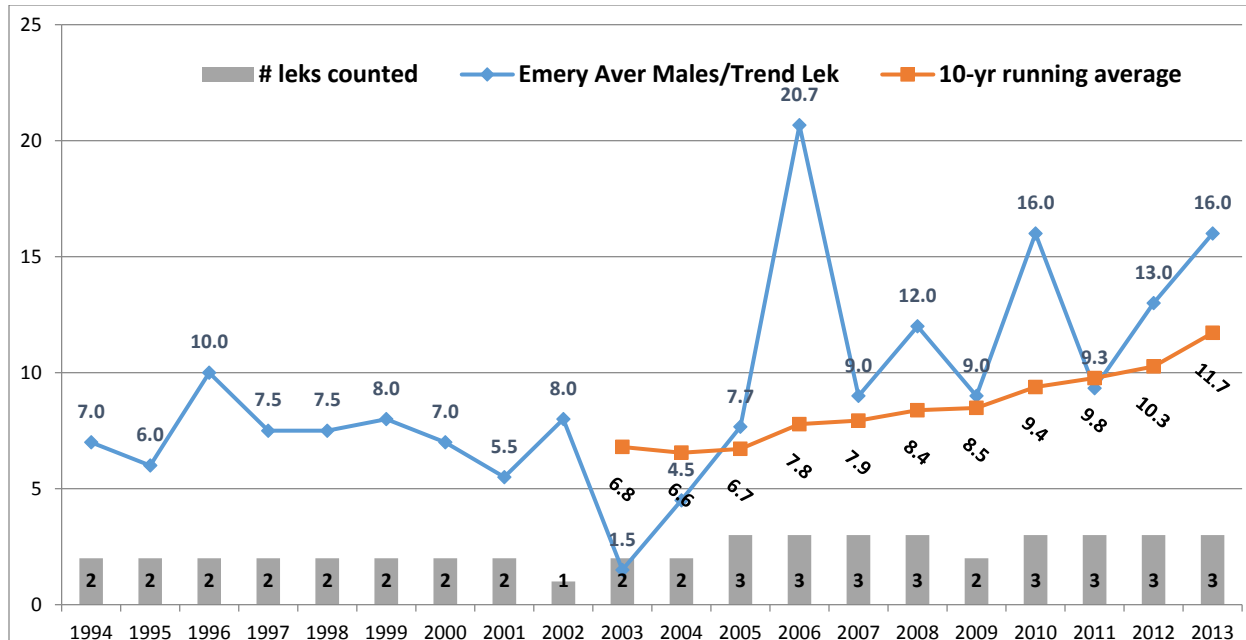
BLM decided to group Emma Park, West Tavaputs, and Anthro Mountain into “All Carbon”, similar to the Uinta Basin grouping but more justifiable because of documented movements. In these populations, 11 of 24 leks were used as trend leks (Antone Creek, Brook Meadow, Moynier Meadows, Houston, Lost Creek, Matt’s Summit, Jeep Trail, Nutters Ridge, Bishop Ridge Corral, Steer Ridge Pond, and Steer Ridge Snag). These trend leks represent Anthro Moutain (2 leks), West Tavaputs (3 leks), and Emma Park (6 leks).





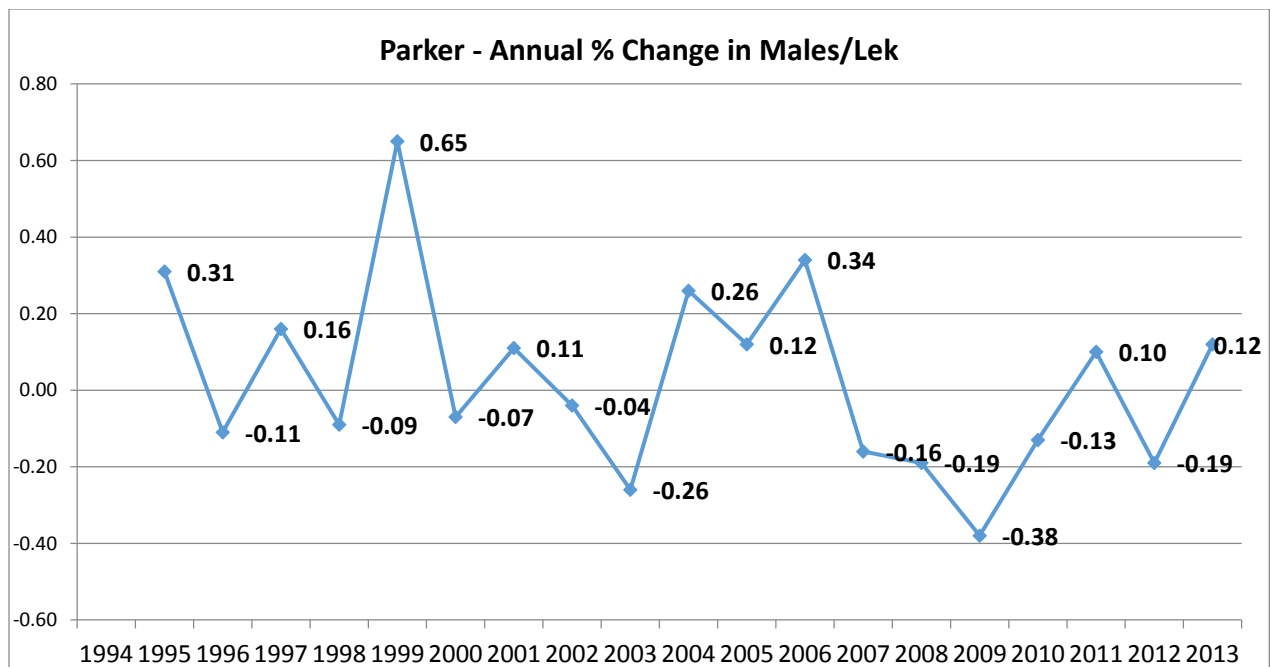
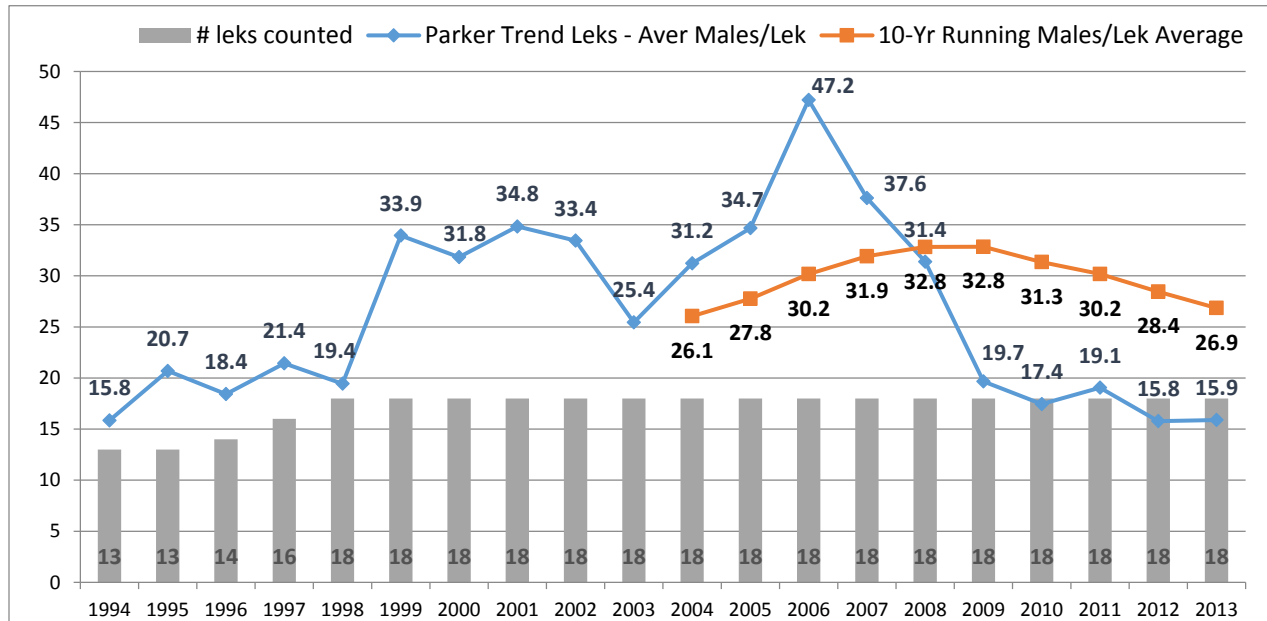
Emery

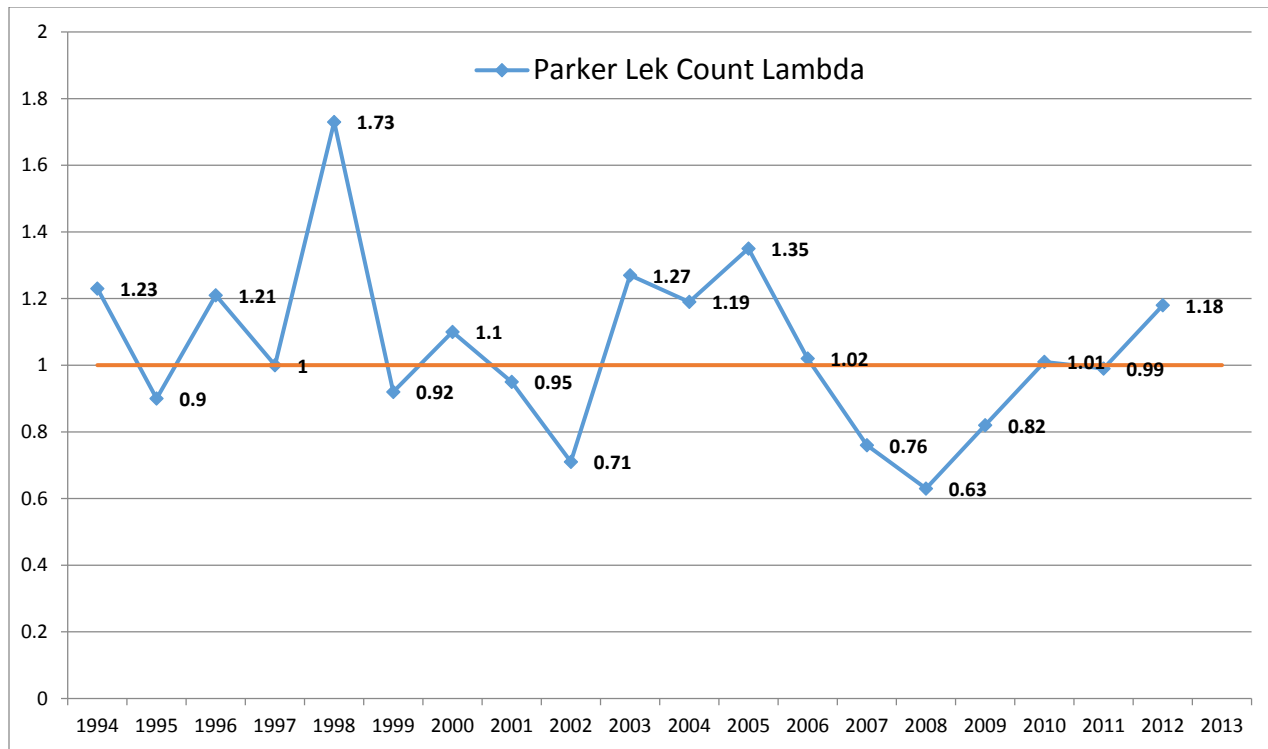
This PHMA is Wildcat Knoll and Horn Mountain and was specifically considered separately from the larger Parker Mountain PHMA because there is no documented bird movement between the two areas. This was also done to provide that substantial declines in the smaller Emery area would be detected and appropriate management actions made. There are only 3 occupied leks in Emery and all 3 leks will be used as trend leks for the adaptive management assessment. For this population, all the leks are being monitored for changes in average males per lek. Therefore, it is not necessary to calculate annual changes from year to year separately, because Lambda already captures this.



Parker Mountain

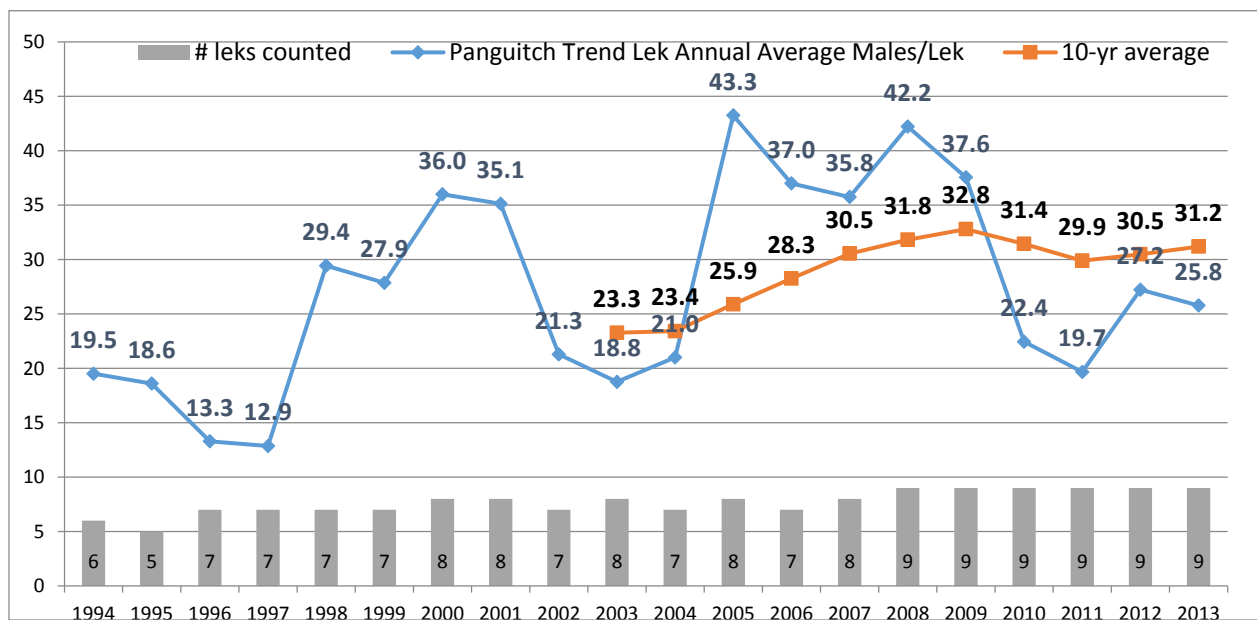
In this PHMA, 18 of 50 leks are trend leks (Angle, Bald Knoll Reservoir, Balsam Hollow Reservoir, Black Point, Bull Roost, Cedar Peak, Dog Flat, Dry Lake, Hare Lake, Hunts Reservoir, John L. Swale, John's Valley Cottonwood, Mud Lake Reservoir, Sage Reservoir, Tom Best Spring, Vance Corral, Vance Reservoir, and Widstoe).

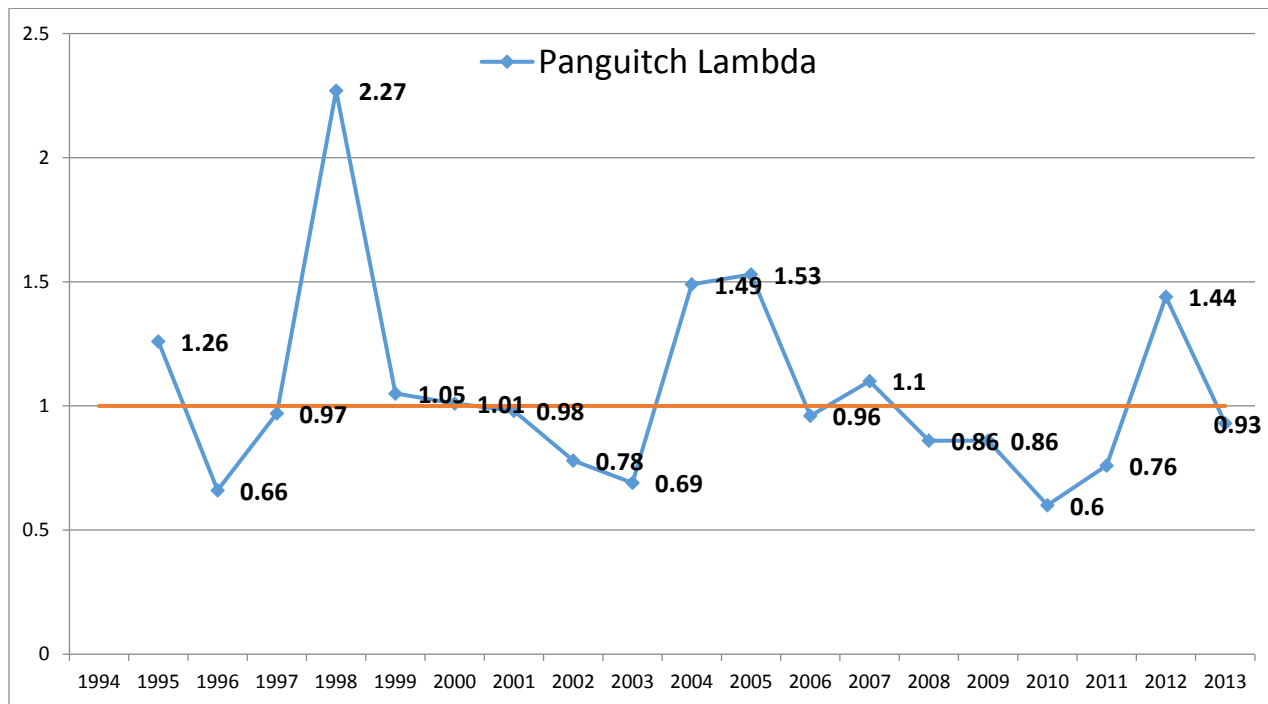
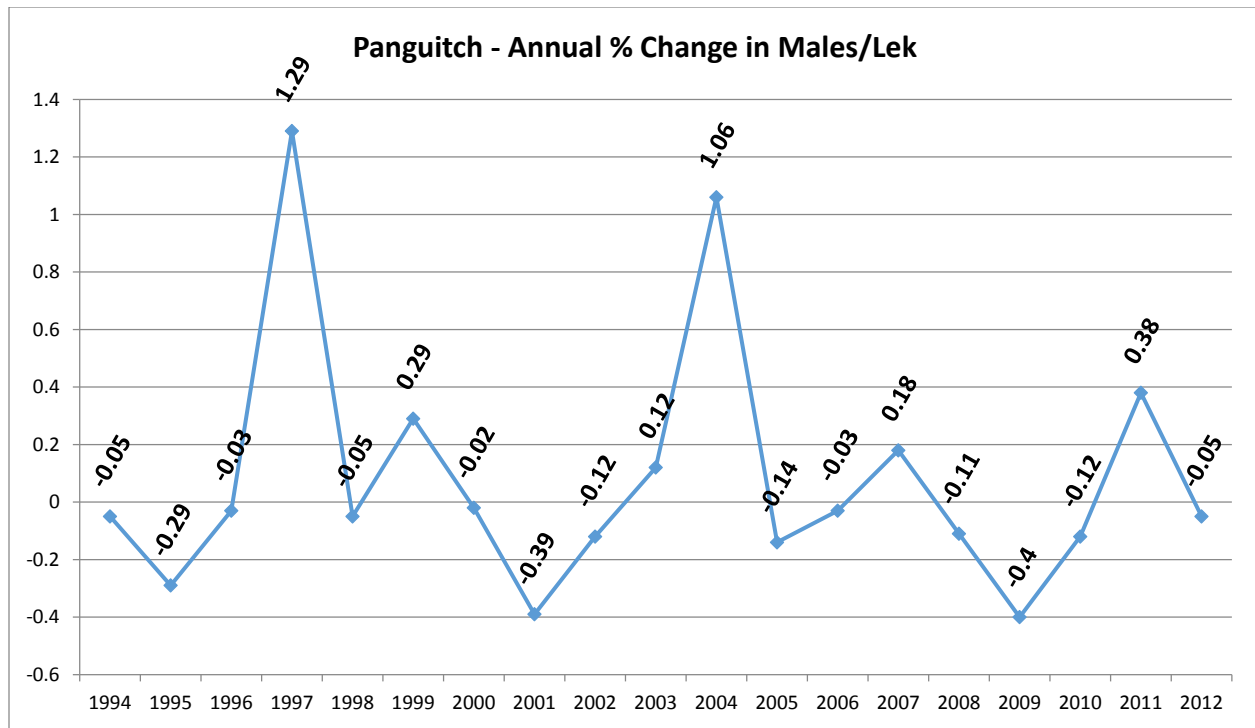




Panguitch

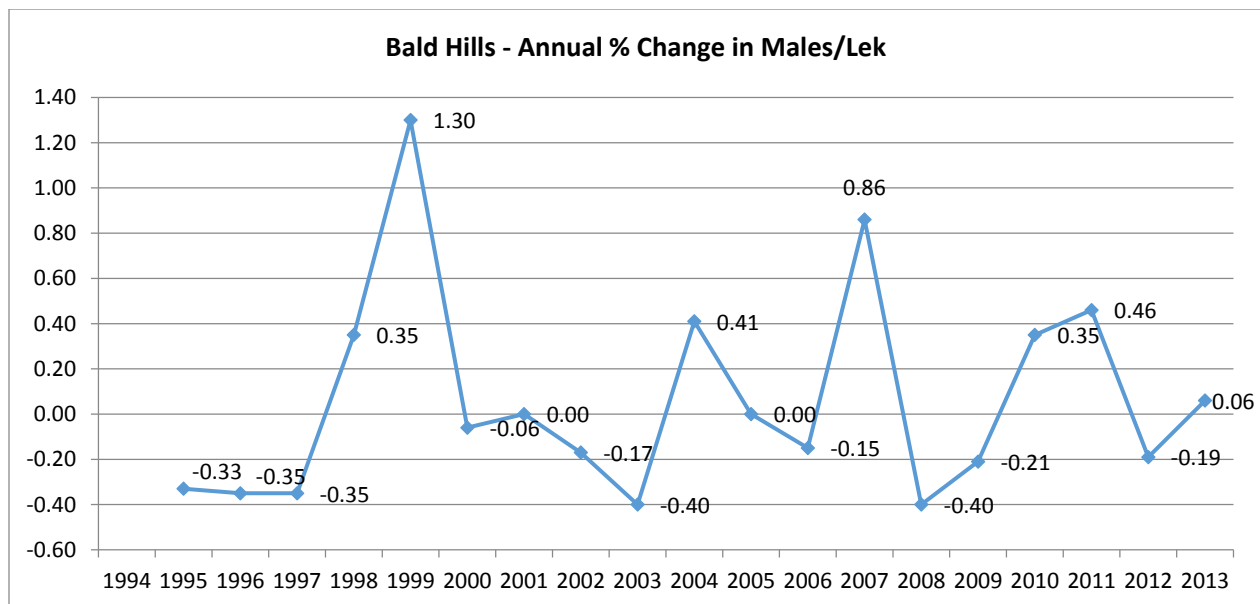
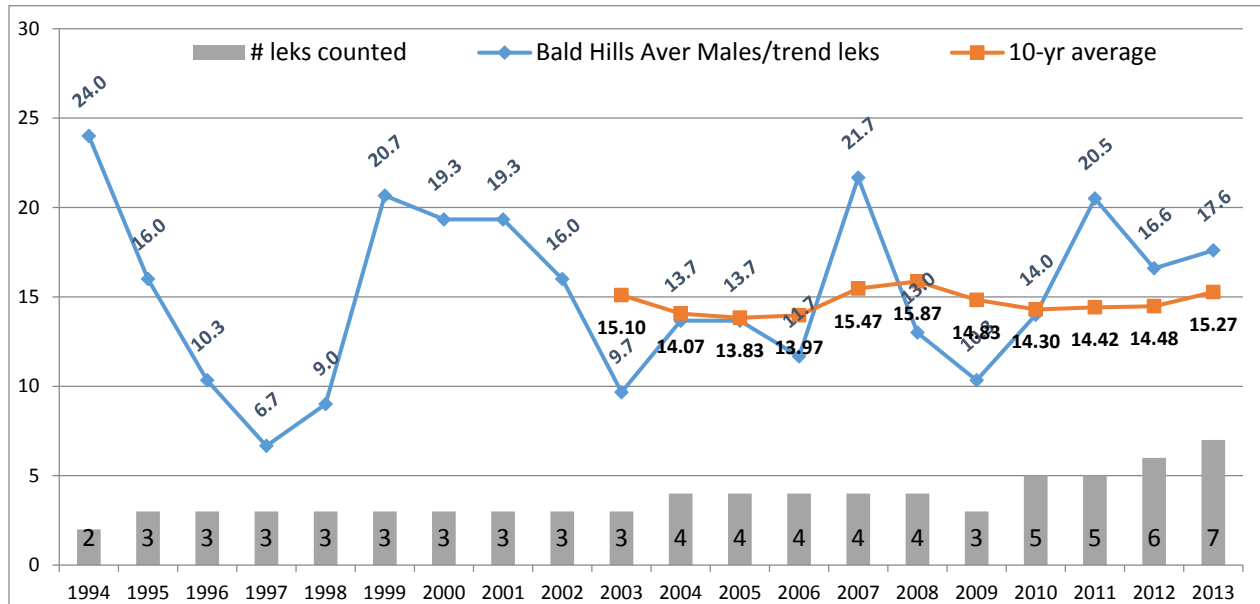
In this PHMA, 9 of 17 occupied leks are trend leks (Sage Hen Hollow, Panguitch Valley East Bench, Pole Hollow Ridge, Butler Creek, Hoyt's Ranch, Sink Hollow and for spatial representation, Buckskin Valley, Dog Valley, and Upper Bear Valley North leks were added).

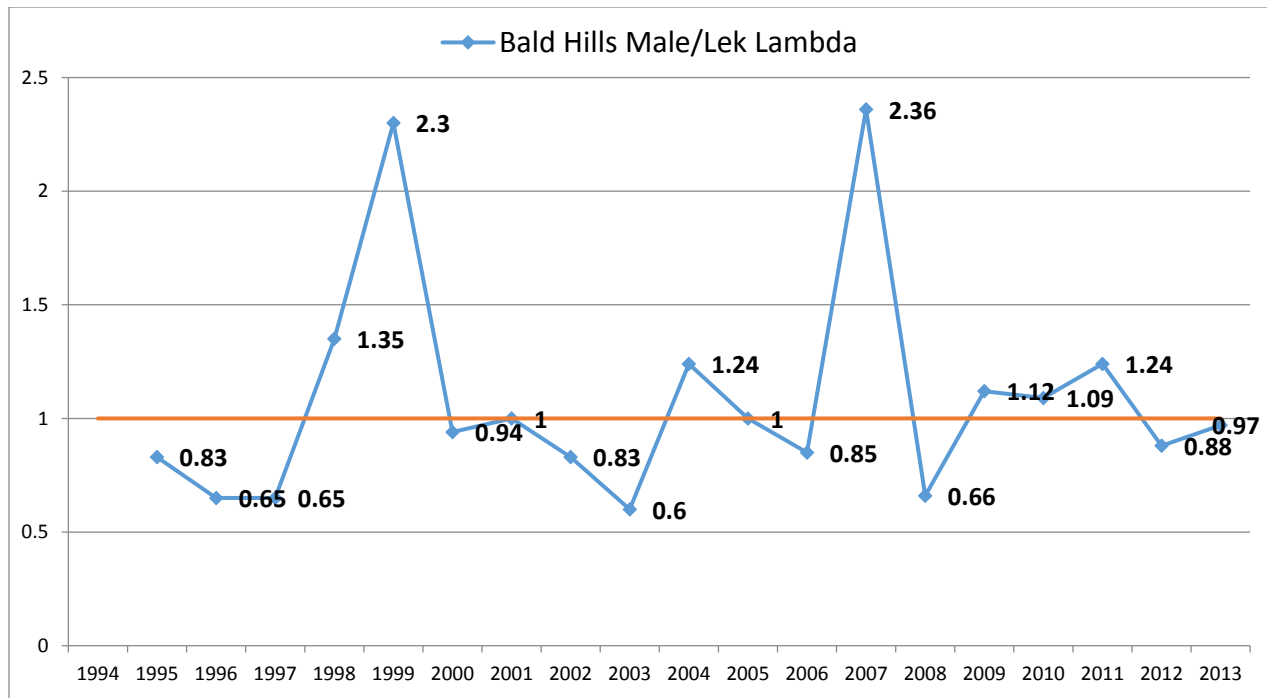




Bald Hills

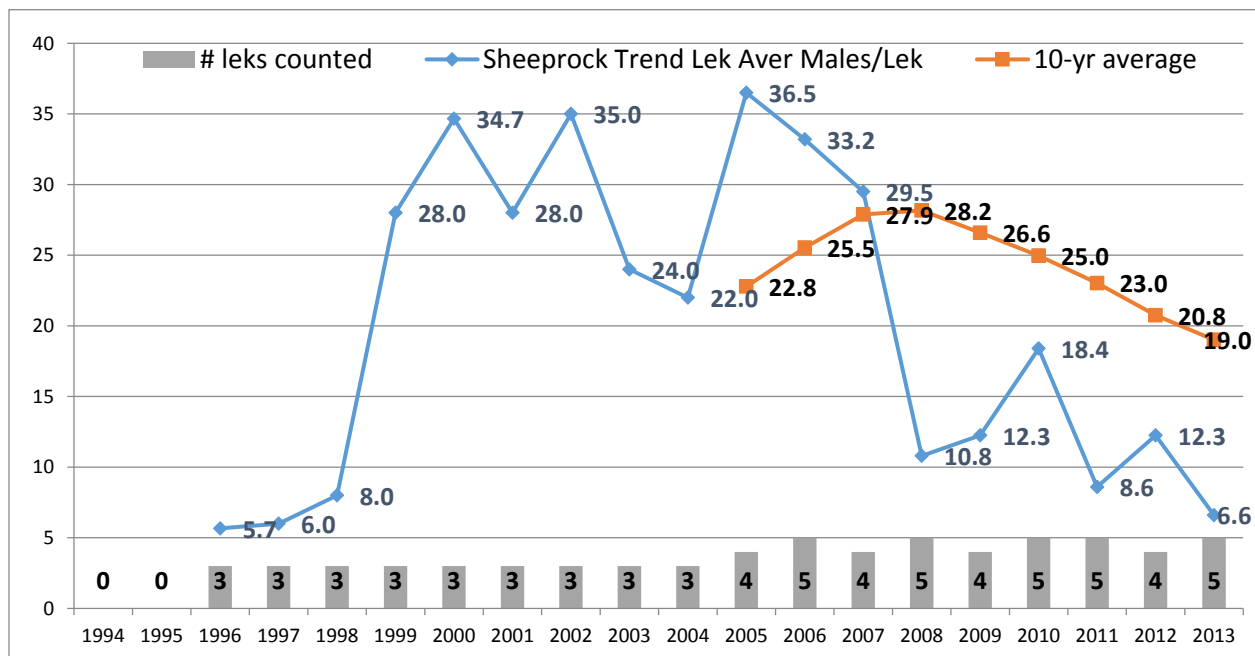
In this PHMA, 7 of 12 leks are trend leks but four leks have been combined into two leks since the newer lek is anticipated to be the result of fire to the old lek (Minersville and Poorman Ridge). As a result, for the purposes of adaptive management, the Minersville lek is combined with the Marshall lek and the Poorman Ridge lek is combined with the Poorman Jeff lek.

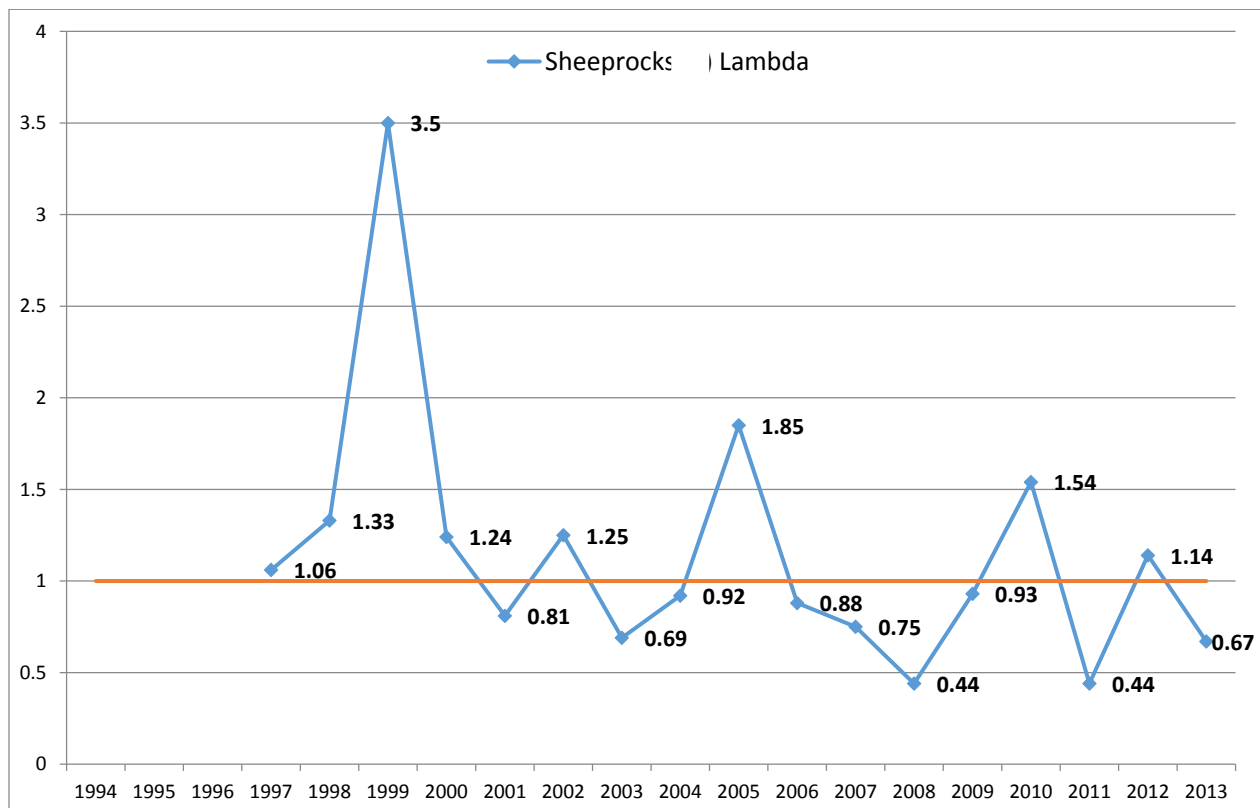
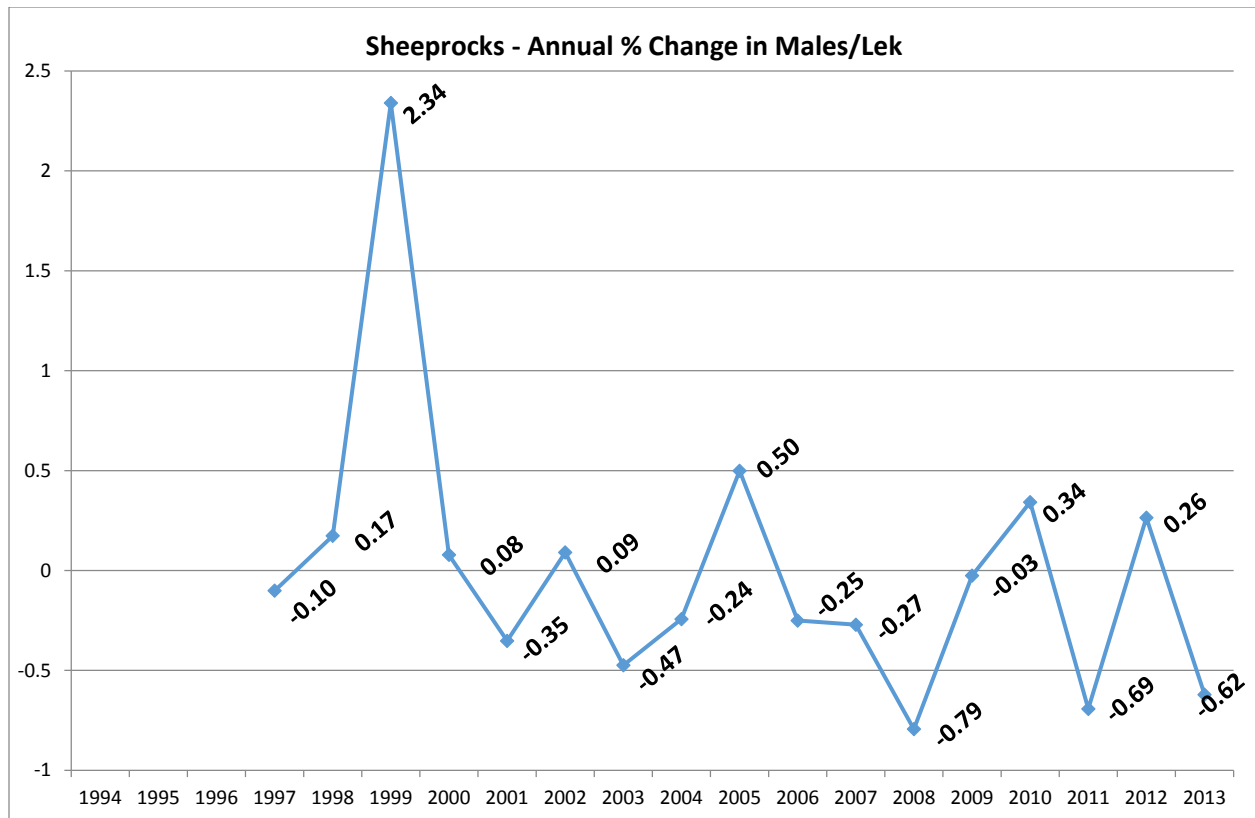




Sheeprocks

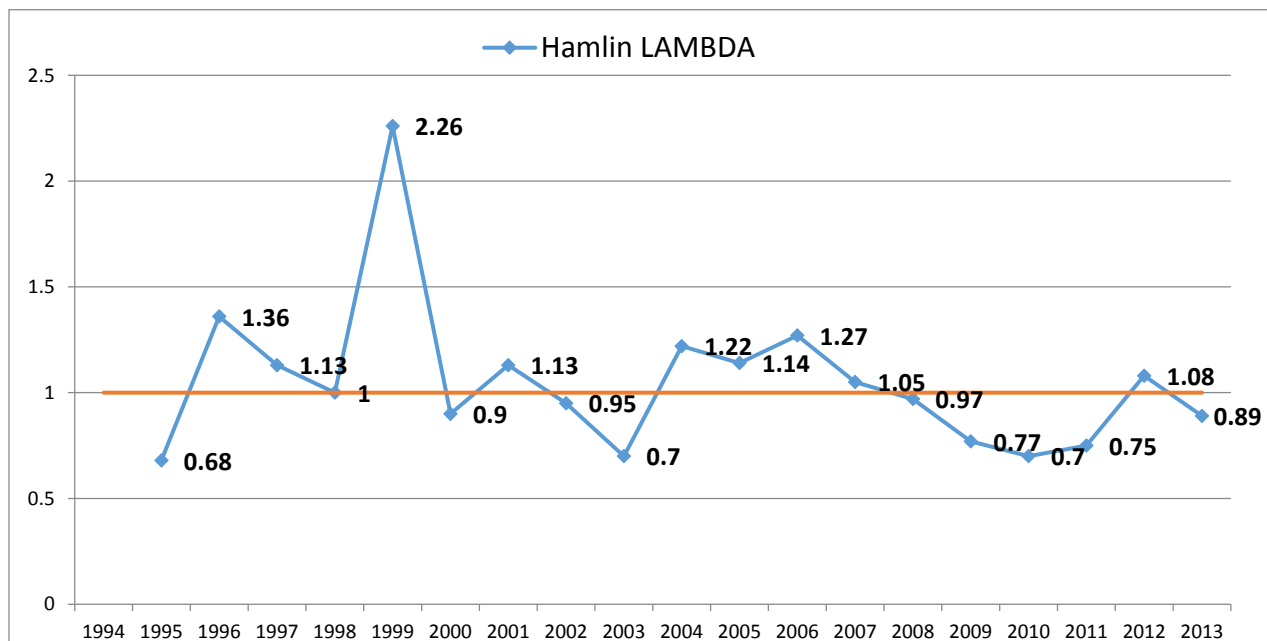
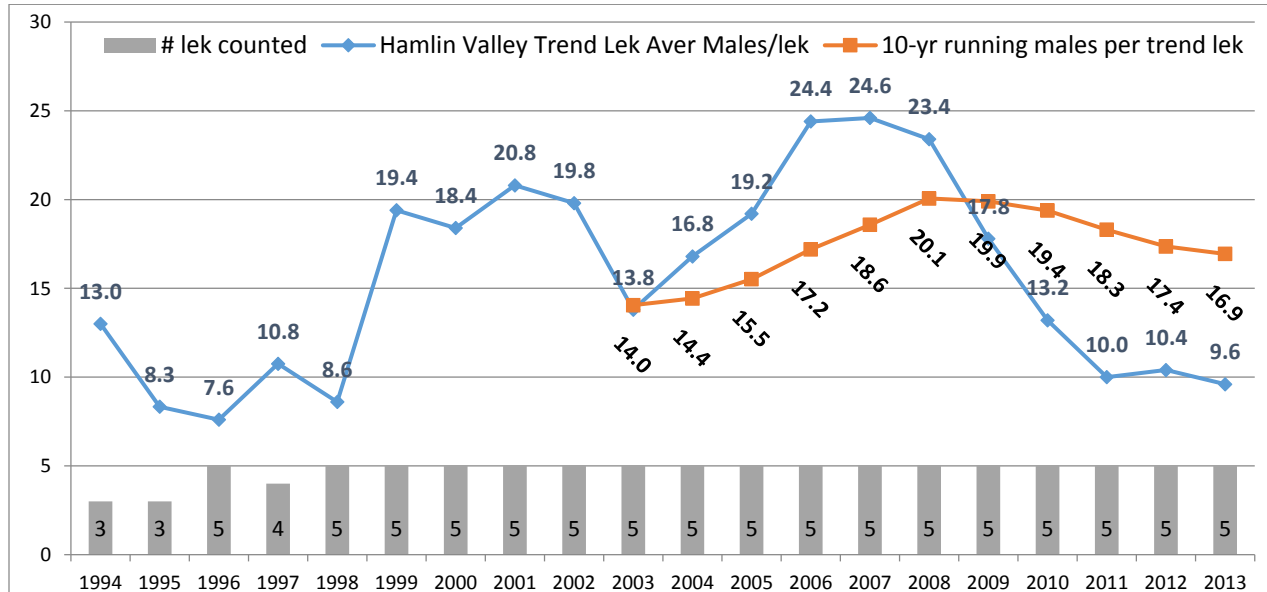
In this PHMA, 5 of 7 leks are trend leks (McIntyre Meadow, McIntyre Ridge, Vernon Little Valley, and for spatial representation Benmore Pastures and Government Creek leks were added).





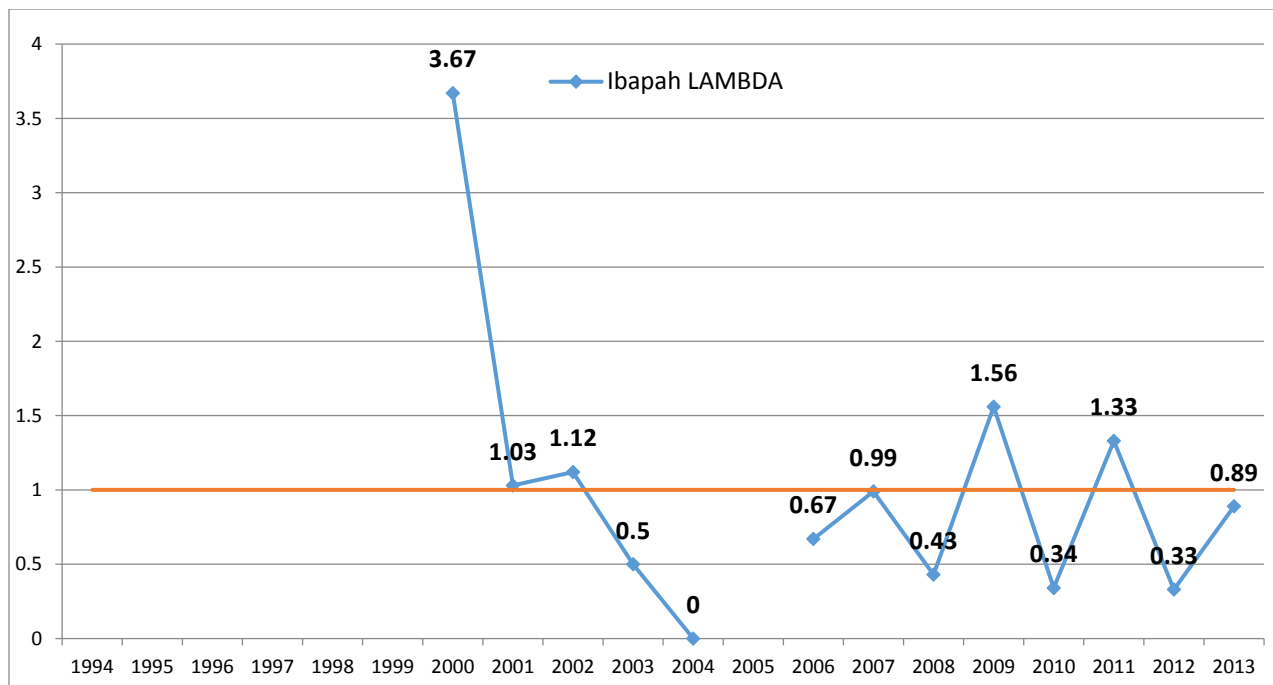
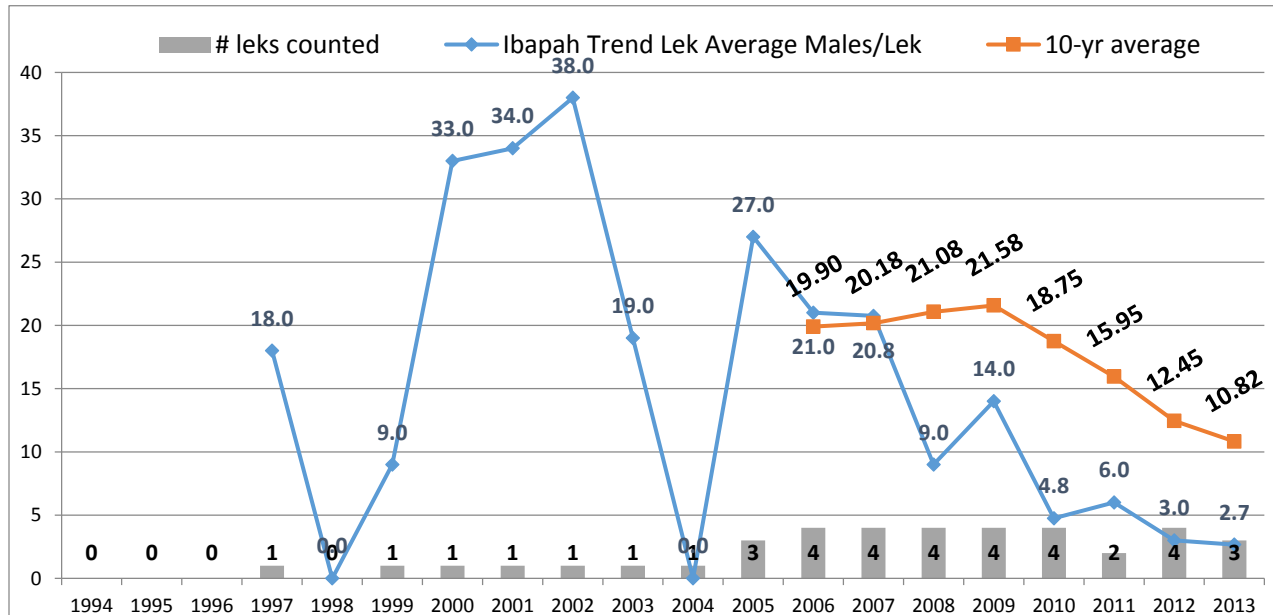
Hamlin Valley

In this PHMA, 5 of 6 are trend leks. For this population, all the leks are being monitored for changes in average males per lek. Therefore, it is not necessary to calculate annual changes from year to year separately, because Lambda already captures this.



Ibapah

In this PHMA, only one of 4 leks met the trend lek criteria but all leks will be used as trend leks. For this population, all the leks are being monitored for changes in average males per lek. Therefore, it is not necessary to calculate annual changes from year to year separately, because Lambda already captures this.



Appendix C

Greater Sage-Grouse Monitoring Framework

APPENDIX C

GREATER SAGE-GROUSE MONITORING FRAMEWORK

C.1 INTRODUCTION

The purpose of this US Bureau of Land Management (BLM) and US Forest Service (Forest Service) Greater Sage-grouse Monitoring Framework (hereafter, monitoring framework) is to describe the methods to monitor habitats and evaluate the implementation and effectiveness of the BLM planning strategy (BLM Instruction Memorandum 2012-044) and the Forest Service Land Use Plans to conserve the species and its habitat. The regulations for the BLM (43 CFR 1610.4-9) require that land use plans establish intervals and standards, as appropriate, for monitoring and evaluations, based on the sensitivity of the resource to the decisions involved. The BLM and Forest Service will use the methods described herein to collect monitoring data to evaluate implementation and effectiveness of the Greater Sage-grouse (hereafter, GRSG) planning strategy and the conservation measures contained in land use plans. The type of monitoring data to be collected at the land use plan scale will be described in the monitoring plan which will be developed after the signing of the Record of Decision. For a summary of the frequency of reporting see **Attachment A, An Overview of Monitoring Commitments**. Adaptive management will be informed by data collected at any and all scales.

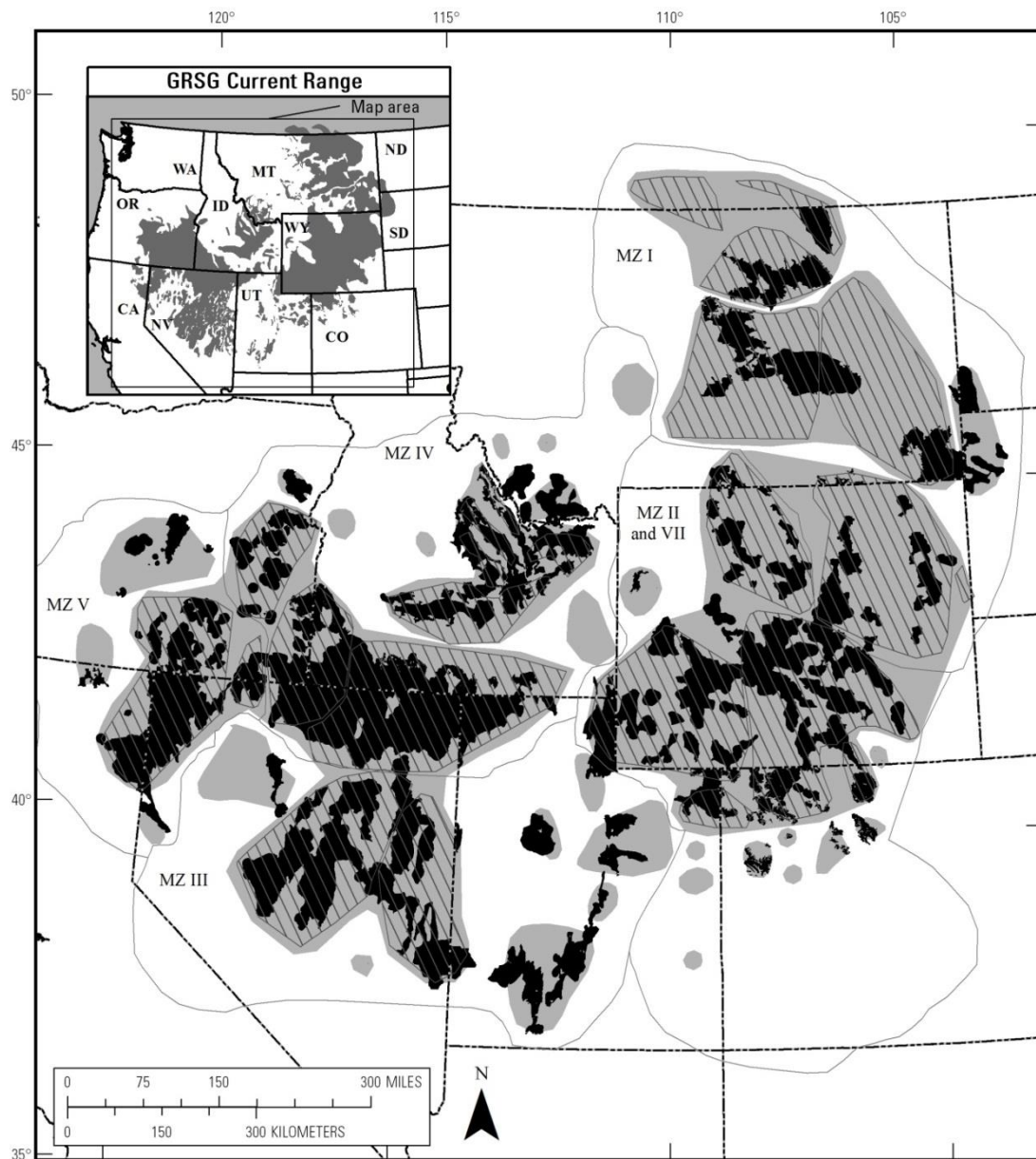
To ensure the BLM and Forest Service have the ability to make consistent assessments about GRSG habitats across the range of the species, this framework lays out the methodology for monitoring the implementation and evaluating the effectiveness of BLM and Forest Service actions to conserve the species and its habitat through monitoring that informs effectiveness at multiple scales. Monitoring efforts will include data for measurable quantitative indicators of sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions. Implementation monitoring results will provide information to allow the BLM and Forest Service to evaluate the extent that decisions from the BLM resource management plans (RMP) and Forest Service land and resource management plans (LRMPs) to conserve GRSG and its habitat have been implemented. Population monitoring information will be collected by state fish and wildlife agencies and will be incorporated into effectiveness monitoring as it is made available.

This multi-scale monitoring approach is necessary as GRSG are a landscape species and conservation is scale-dependent whereby conservation actions are implemented within seasonal habitats to benefit populations. The four orders of habitat selection (Johnson 1980) used in this monitoring framework are described by Connelly et al. (2003) and Stiver et al. (2015 *In Press*) as first order (broad scale), second order (mid-scale), third order (fine scale), and fourth order (site scale) to apply them to GRSG habitat selection. Habitat selection and habitat use by GRSG occurs at multiple scales and is driven by multiple environmental and behavioral factors. Managing and monitoring GRSG habitats are complicated by the differences in habitat selection across the range and habitat utilization by individual birds within a given season. Therefore, the tendency to look at a single indicator of habitat suitability or only one scale limits the ability for managers to identify the threats to GRSG and to respond at the appropriate scale. For descriptions of these habitat suitability indicators for each scale, see the Sage-grouse Habitat Assessment Framework (HAF; Stiver et al. 2015 *In Press*).




Monitoring methods and indicators in this monitoring framework are derived from the current peer-reviewed science. Range wide best-available datasets for broad and mid-scale monitoring will be acquired. If these existing datasets are not readily available or are inadequate, but are necessary to effectively inform the three measurable quantitative indicators (sagebrush availability, anthropogenic disturbance levels, and sagebrush conditions), the BLM will strive to develop datasets or obtain information to fill these data gaps. Datasets that are not readily available to inform the fine and site scale indicators will be developed. These data will be used to generate monitoring reports at the appropriate and applicable geographic scales, boundaries and analysis units: across the range of GRSG as defined by Schroeder et al. (2004), and clipped by Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone (MZ) (Stiver et al. 2006) boundaries and other areas as appropriate for size (e.g., populations based on Connelly et al. 2004; **Figure C.1**, Map of Greater Sage-grouse Range, Populations, Subpopulations and Priority Areas for Conservation (PACs) as of 2013). This broad and mid-scale monitoring data and analysis will provide context for RMP/LRMP areas; states; GRSG priority habitat management areas (PHMA) and general habitat management areas (GHMA); and Priority Areas for Conservation (PACs) as defined in the Greater Sage-grouse Conservation Objectives: Final Report (COT report; US Fish and Wildlife Service 2013). Throughout the remainder of the document, all of these areas will be referred to as “GRSG areas”.

This monitoring framework is divided into two sections. The broad and mid-scale methods, described in **Section C.2**, provide a consistent approach across the range of the species to monitor implementation decisions and actions, mid-scale habitat attributes (e.g., sagebrush availability and habitat degradation), and population changes to determine the effectiveness of BLM and Forest Service planning strategy and management decisions (see **Table C.1**, Indicators for Monitoring Implementation of the Strategy, Decisions, Sage-grouse Habitat, and Sage-grouse Populations at the Broad and Mid-scales). For the GRSG habitat fine and site scales (**Section C.3**), this framework describes a consistent approach (e.g., indicators and methods) for monitoring GRSG seasonal habitats. Funding, support, and dedicated personnel for broad and mid-scale monitoring will be renewed annually through the normal budget process. For an overview of the BLM and Forest Service multi-scale monitoring commitments see **Attachment A**.

Figure C.I
Map of Greater Sage-grouse Range, Populations, Subpopulations and Priority Areas for Conservation (PAC) as of 2013



GRSG PACs, Subpopulations and Populations
LEGEND

-  Subpopulations
-  COT PACs
-  Populations

Sources:

Current Range: Schroeder et al., 2004
 Populations: Connelly et al., 2004
 Subpopulations: Connelly et al., 2004
 PACs: USFWS COT Report, 2013

Table C.1
Indicators for Monitoring Implementation of the Strategy, Decisions, Sage-grouse Habitat,
and Sage-grouse Populations at the Broad and Mid-scales

Geographic Scales	Implementation	Habitat		Population (State Wildlife Agencies)
		Availability	Degradation	Demographics
Broad Scale: From the range of GRSG to WAFWA MZs	BLM/Forest Service Planning Strategy goal and objectives	Distribution and amount of sagebrush within the range	Distribution and amount of energy, mining and infrastructure facilities	WAFWA MZ population trend
Mid-scale: From WAFWA MZ to populations. PACs	RMP/LRMP decisions	Mid-scale habitat indicators (HAF 2014; Table C.2 e.g., percent of sagebrush per unit area)	Distribution and amount of energy, mining and infrastructure facilities (Table C.2)	Individual population trend

C.2 BROAD AND MID-SCALES

First order habitat selection at the broad scale describes the physical or geographical range of a species. The first order habitat, the range of the species, is defined by populations of GRSG associated with sagebrush landscapes based on Schroeder et al. 2004, Connelly et al. 2004 and population surveys and local adjustments based on population or habitat surveys since 2004. There is an intermediate scale between the broad and mid-scales that was delineated by WAFWA from floristic provinces within which similar environmental factors influence vegetation communities. This scale is referred to as the WAFWA GRSG MZs. Although no indicators are specific to this scale, these MZs are biologically meaningful as reporting units.

Second order habitat selection, the mid-scale, includes GRSG populations and PACs. The second order includes at least 40 discrete populations and subpopulations (Connelly et al. 2004). Populations range in area from 150 to 60,000 square miles. PACs range from 20 to 20,400 square miles and are nested within population areas, and populations are nested within MZs.

Other mid-scale landscape indicators such as patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. 2015 *In Press*) will also be assessed. The methods used to calculate these metrics will be derived from existing literature (Knick et al. 2011; Leu and Hanser 2011; Knick and Hanser 2011).

C.2.1 Implementation (Decision) Monitoring

Implementation monitoring is the process of tracking and documenting the implementation (or the progress toward implementation) of land use plan decisions. The BLM and the Forest Service will monitor implementation of project level and/or site specific actions within PHMA and GHMA for the Utah Greater Sage-Grouse LUPA/EIS. These actions and authorizations as well as progress toward completing and implementing activity-level plans will be monitored consistently across all planning units and reported to BLM and Forest Service headquarters

annually, with a summary report every five years. A national-level Land Use Plan Implementation Monitoring and Reporting Structure (IMARS) that describes how the BLM and Forest Service will monitor and report implementation level activity plans and implementation actions for all amended plans will be developed by the Implementation Monitoring Team and included in the Record of Decision/Approved Plan. A centralized tracking tool (IMARS) for collection, roll-up and reporting of tabular and spatially explicit data will be utilized. The BLM and Forest Service will provide data that can be integrated with other conservation efforts conducted by state and federal partners.

C.2.2 Habitat Monitoring

In the USFWS's 2010 listing decision for GRSG, the USFWS identified 18 threats contributing to the destruction, modification, or curtailment of the GRSG's habitat or range (75 *Federal Register* 13910 2010). The BLM and Forest Service will therefore monitor the relative extent of these threats that remove sagebrush (see **Table C.2**, Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring), both spatially and temporally, on all lands within PHMA and GHMA and report on amount, pattern and condition of habitat. These 18 threats have been aggregated into three broad and mid-scale measures to account for whether the threat predominantly removes sagebrush or degrades habitat. The three measures are:

- Measure 1: Sagebrush Availability (percent of sagebrush per unit area)
- Measure 2: Habitat Degradation (percent of human activity per unit area)
- Measure 3: Density of Energy and Mining (facilities and locations per unit area)

These three habitat disturbance measures will evaluate disturbance on all lands regardless of land ownership. The direct area of influence will be assessed with the goal to account for actual removal of sagebrush upon which GRSG depend (Connelly et al. 2000) and for habitat degradation as a surrogate for human activity. Measure 1 examines where disturbances have removed plant communities that support sagebrush (or have broadly removed sagebrush from the landscape), and therefore monitors the change in sagebrush availability, or specifically where and how much of the sagebrush community is available within the range of GRSG. The sagebrush community is defined as the ecological systems that have the capability to support sagebrush vegetation and seasonal GRSG habitats within the range of GRSG (see **Section C.2.2.1** below). Measures 2 and 3 (see **Section C.2.2.2** below) focus on where habitat degradation is occurring using the footprint/area of direct disturbance and the number of facilities at the mid-scale to identify the relative amount of degradation per geographic unit of interest and in areas that have the capability to support sagebrush and seasonal GRSG use. Measure 2 is not only a quantification of footprint/area of direct disturbance but also a surrogate for those threats most likely to have ongoing activity. In addition, energy development and mining activities are typically the most intensive activities in sagebrush habitat. Therefore, Measure 3, the density of active energy development, production, and mining sites will be monitored to help identify areas of particular concern for factors such as noise, dust, traffic, etc., that degrade GRSG habitat.

Table C.2
Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Density of Energy and Mining
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and salable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights of ways		X	

Note: Data availability may preclude specific analysis of individual layers. See the detailed methodology for more information.

The methods to monitor disturbance found herein differ slightly from methods used in the Sage-Grouse Baseline Environmental Report (BER; Manier et al. 2013) that provided a baseline of datasets of disturbance across jurisdictions. One difference is that, for some threats, the data in the BER were for federal lands only. In addition, threats were assessed individually in that report, using different assumptions from those in this monitoring framework about how to quantify the location and magnitude of threats. The methodology herein builds on the BER methodology and identifies datasets and procedures to utilize the best available data across the range of the GRSG and to formulate a consistent approach to quantify impact of the threats through time. This methodology also describes an approach to combine the threats and calculate the three measures.

C.2.2.1 Sagebrush Availability (Measure 1)

GRSG populations have been found to be more resilient where a percentage of the landscape is maintained in sagebrush (Knick and Connelly 2011), which will be determined by sagebrush availability. This measure has been divided into two sub-measures to describe sagebrush availability on the landscape:

- Measure 1a) the current amount of sagebrush on the landscape of interest and
- Measure 1b) the amount of sagebrush on the landscape of interest compared to the amount of sagebrush the landscape of interest could ecologically support.

Measure 1a (the current amount of sagebrush on the landscape) will be calculated using this formula: [the existing updated sagebrush layer] divided by [the geographic unit of interest]. The appropriate geographic units of interest for sagebrush availability include the species' range, WAFWA MZs, populations, and PACs. In some cases these GRSG areas will need to be aggregated to provide an estimate of sagebrush availability with an acceptable level of accuracy.

Measure 1b (the amount of sagebrush for context within the area of interest) will be calculated using this formula: [the existing updated sagebrush layer (EVT)] divided by [pre Euro-American geographic extent of lands that could have supported sagebrush (BpS)]. This will provide information during evaluations of monitoring data to set the context for a given geographic unit of interest. That information could also be used for management options for restoration or mitigation.

The sagebrush base layer for the sagebrush availability measure will be based on geospatial vegetation data adjusted for the threats listed in **Table C.2**. The following sub-sections of this monitoring framework describe the methodology to determine both the current availability of sagebrush on the landscape and the context of the amount of sagebrush on the landscape at the broad and mid-scales.

Establishing the Sagebrush Base Layer

The current geographic extent of sagebrush vegetation within the range wide distribution of GRSG populations will be ascertained using the most recent version of the Existing Vegetation Type (EVT) layer in LANDFIRE (2010). LANDFIRE EVT was selected to serve as the sagebrush base layer for five reasons: 1) it is the only nationally consistent vegetation layer that has been updated multiple times since 2001; 2) the ecological systems classification within LANDFIRE EVT includes multiple sagebrush type classes that, when aggregated, provide a more accurate (compared with individual classes) and seamless sagebrush base layer across jurisdictional boundaries; 3) LANDFIRE performed a rigorous accuracy assessment from which to derive the range wide uncertainty of the sagebrush base layer; 4) LANDFIRE is consistently used in several recent analyses of sagebrush habitats (Knick et al. 2011; Leu and Hanser 2011; Knick and Hanser 2011); and 5) LANDFIRE EVT can be compared against the geographic extent of lands that are believed to have had the capability to support sagebrush vegetation pre Euro-American settlement [LANDFIRE Biophysical Setting (BpS)]. This fifth reason provides a reference point for understanding how much sagebrush currently remains in a defined geographic area compared with how much sagebrush existed historically (Measure 1b). Therefore, BLM and Forest Service have determined that LANDFIRE provides the best available data at broad and

mid-scales to serve as a sagebrush base layer for monitoring changes in the geographic extent of sagebrush. Along with aggregating the sagebrush types into the sagebrush base layer, BLM and Forest Service will aggregate the accuracy assessment reports from LANDFIRE to document the cumulative accuracy for the sagebrush base layer. For the long-term, BLM through its Assessment, Inventory, and Monitoring (AIM) program and specifically the BLM'S Landscape Monitoring Framework (Taylor et al. *in press*) will provide field data to the LANDFIRE program to support continuous quality improvements in their products specifically for rangeland systems to improve the LANDFIRE EVT layer.

Within the Forest Service and BLM, forest-wide and field office-wide existing vegetation classification mapping and inventories are available that provide a much finer level of data than provided through LANDFIRE. Where available, these finer scale products are useful for additional and complimentary mid-scale indicators and local scale analyses (see **Section C.3**, Fine and Site Scale). The fact that these products are not available everywhere limits their utility for monitoring at the broad and mid-scale where consistency of data products is necessary across broader geographies.

The sagebrush layer based on LANDFIRE EVT will allow for the mid-scale estimation of existing percent sagebrush across a variety of reporting units. This sagebrush base layer will be adjusted by changes in land cover and successful restoration for future calculations of sagebrush availability (Measures 1a and 1b).

This layer will be used to determine the trend in other landscape indicators, e.g. patch size and number, patch connectivity, linkage areas, and landscape matrix and edge effects (Stiver et al. 2015 *In Press*). In the future, changes in sagebrush availability, generated bi-annually, will be included in the sagebrush base layer. The landscape metrics will be recalculated to examine changes in pattern and abundance of sagebrush at the various geographic boundaries. This information will be included in effectiveness monitoring (see **Section C.2.4**).

Data Sources to Establish and Monitor Sagebrush Availability

In much the same manner as how the LANDFIRE data was selected as the data source, described above, the criteria for selecting the datasets (**Table C.3**, Datasets for Establishing and Monitoring Changes in Sagebrush Availability) for establishing and monitoring the change in sagebrush availability, Measure 1, were threefold:

- Nationally consistent dataset available across the range
- Known level of confidence or accuracy in the dataset
- Dataset is continually maintained with a known update interval

LANDFIRE Existing Vegetation Type (EVT) Version 1.2

LANDFIRE EVT represents existing vegetation types on the landscape derived from remote sensing data. Initial mapping was conducted using imagery collected in approximately 2001. Since the initial mapping, there have been two update efforts: version 1.1 represents changes up to 2008 and version 1.2 reflects changes on the landscape up to 2010. Version 1.2 will be used as the starting point to develop the sagebrush base layer.

Table C.3
Datasets for Establishing and Monitoring Changes in Sagebrush Availability

Dataset	Source	Update Interval	Most Recent Version Year	Use
BioPhysical Setting (BpS) v1.1	LANDFIRE	Static	2008	Denominator for Sagebrush Availability (1.b.)
Existing Vegetation Type (EVT) v1.2	LANDFIRE	Static	2010	Numerator for Sagebrush Availability
Cropland Data Layer (CDL)	National Agricultural Statistics Service (NASS)	Annual	2012	Agricultural Updates; removes existing sagebrush from numerator of sagebrush availability
National Land Cover Dataset (NLCD) Percent Imperviousness	Multi-Resolution Land Characteristics Consortium (MRLC)	5 Year	2011 available in March 2014	Urban Area Updates; removes existing sagebrush from numerator of sagebrush availability
Fire Perimeters	GeoMac	Annual	2013	< 1,000 acres Fire updates; removes existing sagebrush from numerator of sagebrush availability
Burn Severity	Monitoring Trends in Burn Severity (MTBS)	Annual	2012 available in April 2014	> 1,000 acres Fire Updates; removes existing sagebrush from numerator of sagebrush availability except for unburned sagebrush islands

Ecological systems from the LANDFIRE EVT to be used in the sagebrush base layer were determined by GRSG subject matter experts through the identification of the ecological systems that have the capability of supporting sagebrush vegetation and could provide suitable seasonal habitat for the GRSG (**Table C.4**, Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and Could Provide Suitable Seasonal Habitat for Greater Sage-grouse). Two additional vegetation types that are not ecological systems were added to the EVT and are *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance. These alliances have species composition directly related to the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system, both of which are ecological systems in LANDFIRE BpS. In LANDFIRE EVT however, in some map zones, the Rocky Mountain Lower Montane - Foothill Shrubland ecological system and the Rocky Mountain Gambel Oak-Mixed Montane Shrubland ecological system were named *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and *Quercus gambelii* Shrubland Alliance respectively.

Table C.4
Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and
Could Provide Suitable Seasonal Habitat for Greater Sage-grouse

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Mixed Low Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia bigelovii</i> <i>Artemisia nova</i> <i>Artemisia frigida</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Columbia Plateau Scabland Shrubland	<i>Artemisia rigida</i>
Great Basin Xeric Mixed Sagebrush Shrubland	<i>Artemisia arbuscula</i> ssp. <i>longicaulis</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Big Sagebrush Shrubland	<i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Inter-Mountain Basins Mixed Salt Desert Scrub	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia spinescens</i>
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	<i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>rupicola</i>
Columbia Plateau Low Sagebrush Steppe	<i>Artemisia arbuscula</i> <i>Artemisia arbuscula</i> ssp. <i>longiloba</i> <i>Artemisia nova</i>
Inter-Mountain Basins Big Sagebrush Steppe	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>xericensis</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tripartita</i> ssp. <i>tripartita</i> <i>Artemisia frigida</i>
Inter-Mountain Basins Montane Sagebrush Steppe	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia nova</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>spiciformis</i>
Northwestern Great Plains Mixed grass Prairie	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia frigida</i>
Northwestern Great Plains Shrubland	<i>Artemisia cana</i> ssp. <i>cana</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Western Great Plains Sand Prairie	<i>Artemisia cana</i> ssp. <i>cana</i>
Western Great Plains Floodplain Systems	<i>Artemisia cana</i> ssp. <i>cana</i>
Columbia Plateau Steppe and Grassland	<i>Artemisia</i> spp.

Table C.4
Ecological Systems in BpS and EVT Capable of Supporting Sagebrush Vegetation and
Could Provide Suitable Seasonal Habitat for Greater Sage-grouse

Ecological System	Sagebrush Vegetation that the Ecological System has the Capability to Produce
Inter-Mountain Basins Semi-Desert Shrub-Steppe	<i>Artemisia tridentata</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>
Rocky Mountain Lower Montane-Foothill Shrubland	<i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia frigida</i>
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	<i>Artemisia tridentata</i>
Inter-Mountain Basins Curl-Leaf Mountain Mahogany Woodland and Shrubland	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i>
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
<i>Quercus gambelii</i> Shrubland Alliance (EVT only)	<i>Artemisia tridentata</i>

Accuracy and Appropriate Use of LANDFIRE Datasets

Because of concerns over the thematic accuracy of individual classes mapped by LANDFIRE, all ecological systems listed in **Table C.4** will be merged into one value that represents the sagebrush base layer. By aggregating all ecological systems, the combined accuracy of the sagebrush base layer (EVT) is much greater than if all categories were treated separately.

LANDFIRE performed the original accuracy assessment of their EVT product on a map zone basis. There are 20 LANDFIRE map zones that cover the historic range of GRSG as defined by Schroeder (2004). **Attachment C**, User and Producer Accuracies for Aggregated Ecological Systems within LANDFIRE Map Zones, lists the user and producer accuracies for the aggregated ecological systems that make up the sagebrush base layer and also defines user and producer accuracies. The aggregated sagebrush base layer for monitoring had producer accuracies ranging from 56.7 percent to 100 percent and user accuracies ranging from 57.1 percent to 85.7 percent.

LANDFIRE EVT data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units (Measure 1a), the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level (30 square meters resolution of raster data) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush estimate will have greater uncertainties compared with the much larger PACs.

Agricultural Adjustments for the Sagebrush Base Layer

The dataset for the geographic extent of agricultural lands will come from the National Agricultural Statistics Service (NASS) Cropland Data Layer (CDL).¹ CDL data are generated on an annual basis with “estimated producer accuracies for large row crops from the mid-80 to mid-90 percent” depending on the State². Readers are referred to the NASS metadata website for specific information on accuracy³. CDL provided the only dataset that matches the three criteria (nationally consistent, known level of accuracy, and periodically updated) for use in this monitoring framework and represents the best available agricultural lands mapping product.

The CDL data contain both agricultural classes as well as non-agricultural classes. For this effort, as was also done in the BER (Manier et al. 2013), non-agricultural classes were removed from the original dataset. The excluded classes are as follows:

- Barren (65 & 131)
- Deciduous Forest (141)
- Developed/High Intensity (124)
- Developed/Low Intensity (122)
- Developed/Med Intensity (123)
- Developed/Open Space (121)
- Evergreen Forest (142)
- Grassland Herbaceous (171)
- Herbaceous Wetlands (195)
- Mixed Forest (143)
- Open Water (83 & 111)
- Other Hay/Non Alfalfa (37)
- Pasture/Hay (181)
- Pasture/Grass (62)
- Perennial Ice/Snow (112)
- Shrubland (64 & 152)
- Woody Wetlands (190)

The rule set for adjusting the sagebrush base layer for agricultural lands is that once an area is classified as agriculture in any year of the CDL, those pixels will remain out of the sagebrush base layer even if a new version of CDL classifies that pixel as one of the non-ag classes listed above. The assumption is that even though individual pixels may get classified as a non-agricultural class in any given year the pixel has not necessarily been restored to a natural sagebrush community that would be included in **Table C.4**. It is further assumed that once an area has moved into agricultural use, it is unlikely that it would be restored to sagebrush. Should that occur, the method and criteria for adding pixels back into the sagebrush base layer would follow those found in the Restoration Updates section of this framework.

Urban Adjustments for the Sagebrush Base Layer

The National Land Cover Dataset (NLCD) Percent Imperviousness was selected as the best available dataset to be used for urban updates. These data are generated on a five-year cycle and specifically designed to support monitoring efforts. Other datasets were evaluated and lacked the spatial specificity that was captured in the NLCD product. Any new impervious pixel will be removed from the sagebrush base layer during the update process. Although the impervious

¹ <http://www.nass.usda.gov/research/Cropland/Release/index.htm>

² http://www.nass.usda.gov/research/Cropland/sarsfaq2.htm#Section3_18.0

³ <http://www.nass.usda.gov/research/Cropland/metadata/meta.htm>

surface layer includes a number of impervious pixels outside of urban areas, there are two reasons why this is acceptable for this process. First, an evaluation of national urban area datasets did not reveal a layer that could be confidently used in conjunction with the NLCD product to screen impervious pixels outside of urban zones because unincorporated urban areas were not being included, thus leaving large chunks of urban pixels unaccounted for in this rule set. Secondly, experimentation with setting a threshold on the percent imperviousness layer that would isolate rural features proved to be unsuccessful. No combination of values could be identified that would result in the consistent ability to limit impervious pixels outside urban areas. Therefore, to ensure consistency in the monitoring estimates, it was determined to include all impervious pixels.

Fire Adjustments for the Sagebrush Base Layer

Two datasets were selected for performing fire updates: GeoMac fire perimeters and Monitoring Trends in Burn Severity (MTBS). An existing data standard in the BLM requires all fires with sizes greater than 10 acres to be reported to GeoMac, therefore there will be many small fires less than 10 acres in size that will not be accounted for in the fire updates. In the update process using fire perimeters from GeoMac, all sagebrush pixels falling within the perimeter of fires less than 1,000 acres in size will be used to update the sagebrush layer.

MTBS was selected for use as a means to account for unburned sagebrush islands during the update process of the sagebrush base layer. The MTBS program⁴ is an on-going multi-year project to consistently map fire severity and fire perimeters across the US. For lands in the western US, MTBS only maps burn severity for fires greater than 1,000 acres in size. One of the burn severity classes within MTBS is an unburned to low severity class. This burn severity class will be used to represent unburned islands of sagebrush within the fire perimeter that will be retained in the sagebrush base layer. Areas within the other severity classes within the fire perimeter will be removed from the base sagebrush layer during the update process. However, not all wildfires have the same impact on the recovery of sagebrush habitat depending largely on soil moisture and temperature regimes. For example, cooler, moister sagebrush habitat has a higher potential for recovery or, if needed restoration, than the warmer, dryer sagebrush habitat. These areas will likely be detected as sagebrush in future updates to LANDFIRE.

Conifer Encroachment adjustment for the Sagebrush Base Layer

Conifer encroachment into sagebrush vegetation reduces the spatial extent of GRSG habitat (Davies et al. 2011; Baruch-Mordo et al. 2013). Conifer species that show propensity for encroaching into sagebrush vegetation which results in GRSG habitat loss include various juniper species such as Utah juniper (*Juniperus osteosperma*), western juniper (*Juniperus occidentalis*), Rocky Mountain juniper (*Juniperus scopulorum*), pinyon species including singleleaf pinyon (*Pinus monophylla*) and pinyon pine (*Pinus edulis*), ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), and Douglas-fir (*Pseudotsuga menziesii*) (Gruell et al. 1986; Grove et al. 2005; Davies et al. 2011).

A rule set for conifer encroachment was developed to determine the existing sagebrush base layer. To capture the geographic extent of sagebrush that is likely to experience conifer

⁴ <http://www.mtbs.gov>

encroachment, ecological systems within LANDFIRE EVT version 1.2 (NatureServe 2011) were identified if they have the capability of supporting the conifer species (listed above) and sagebrush vegetation. Those ecological systems (**Table C.5**, Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation) were deemed to be the plant communities with conifers most likely to encroach into sagebrush vegetation. Sagebrush vegetation was defined as including sagebrush species (**Attachment B**, List of All Sagebrush Species and Subspecies Included in the Selection Criteria for Building the EVT and BpS Layers) that provide habitat for the GRSG and are included in the Sage-Grouse HAF. An adjacency analysis was conducted to identify all sagebrush pixels that were directly adjacent to these conifer ecological systems. Those immediately adjacent sagebrush pixels were removed from the sagebrush base layer.

Table C.5
Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Colorado Plateau Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus osteosperma</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> ssp. <i>tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i> <i>Artemisia bigelovii</i> <i>Artemisia pygmaea</i>
Columbia Plateau Western Juniper Woodland and Savanna	<i>Juniperus occidentalis</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia rigida</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
East Cascades Oak-Ponderosa Pine Forest and Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Artemisia tridentata</i> <i>Artemisia nova</i>
Great Basin Pinyon-Juniper Woodland	<i>Pinus monophylla</i> <i>Juniperus osteosperma</i> <i>Artemisia arbuscula</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Northern Rocky Mountain Ponderosa Pine Woodland and Savanna	<i>Pinus ponderosa</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>

Table C.5
Ecological Systems with Conifers Most Likely to Encroach into Sagebrush Vegetation

EVT Ecological Systems	Coniferous Species and Sagebrush Vegetation that the Ecological System has the Capability to Produce
Rocky Mountain Foothill Limber Pine-Juniper Woodland	<i>Juniperus osteosperma</i> <i>Juniperus scopulorum</i> <i>Artemisia nova</i> <i>Artemisia tridentata</i>
Rocky Mountain Poor-Site Lodgepole Pine Forest	<i>Pinus contorta</i> <i>Pseudotsuga menziesii</i> <i>Pinus ponderosa</i> <i>Artemisia tridentata</i>
Southern Rocky Mountain Pinyon-Juniper Woodland	<i>Pinus edulis</i> <i>Juniperus monosperma</i> <i>Artemisia bigelovii</i> <i>Artemisia tridentata</i> <i>Artemisia tridentata</i> ssp. <i>wyomingensis</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
Southern Rocky Mountain Ponderosa Pine Woodland	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> <i>Pinus edulis</i> <i>Pinus contorta</i> <i>Juniperus</i> spp. <i>Artemisia nova</i> <i>Artemisia tridentata</i> <i>Artemisia arbuscula</i> <i>Artemisia tridentata</i> ssp. <i>vaseyana</i>

Invasive Annual Grasses Adjustments for the Sagebrush Base Layer

There are no invasive species datasets from 2010 to present (beyond the LANDFIRE data) that meet our 3 criteria (nationally consistent, known level of accuracy, and periodically updated) for use in the determination of the sagebrush base layer. For a description of how invasive species land cover will be incorporated in the sagebrush base layer in the future, see the **Monitoring Sagebrush Availability** section below.

Sagebrush Restoration Adjustments for the Sagebrush Base Layer

There are no datasets from 2010 to present that could provide additions to the sagebrush base layer from restoration treatments that meet the three criteria (nationally consistent, known level of accuracy, and periodically updated) therefore, no adjustments were made to the sagebrush base layer calculated from the LANDFIRE EVT (Version 1.2) due to restoration activities since 2010. Successful restoration treatments prior to 2010 are assumed to have been captured in the LANDFIRE refresh.

Monitoring Sagebrush Availability

Updating the Sagebrush Availability Sagebrush Base Layer

Sagebrush availability will be updated annually by incorporating changes to the sagebrush base layer attributable to agriculture, urbanization, and wildfire. The monitoring schedule for the existing sagebrush base layer updates is as follows:

2010 Existing Sagebrush Base Layer = [Sagebrush EVT] minus [2006 Imperviousness Layer] minus [2009 and 2010 CDL] minus [2009/10 GeoMac Fires < 1,000 acres] minus [2009/10 MTBS Fires excluding unburned sagebrush islands] minus [Conifer Encroachment Layer]

2012 Existing Sagebrush Update = [Base 2010 Existing Sagebrush Layer] minus [2011 Imperviousness Layer] minus [2011 and 2012 CDL] minus [2011/12 GeoMac Fires < 1,000 acres] minus [2011/12 MTBS Fires > 1,000 acres, excluding unburned sagebrush islands within the perimeter]

2013 and beyond Existing Sagebrush Updates = [Previous Existing Sagebrush Update Layer] minus [Imperviousness Layer (if new data are available)] minus [Next 2 years of CDL] minus [Next 2 years of GeoMac Fires < 1,000 acres] minus [Next 2 years MTBS Fires > 1,000 acres, excluding unburned sagebrush islands within the perimeter] plus [restoration/monitoring data provided by the field]

Sagebrush Restoration Updates

Restoration after fire, after agricultural conversion, after seedings of introduced grasses, or after treatments of pinyon pine and/or juniper, are examples of updates to the sagebrush base layer that can add sagebrush vegetation. When restoration has been determined to be successful through range wide, consistent, interagency fine and site-scale monitoring, the polygonal data will be used to add sagebrush pixels back into the broad and mid-scale sagebrush base layer.

Measure 1b – Context for the change in the amount of sagebrush in a landscape of interest

Measure 1b describes the amount of sagebrush on the landscape of interest compared with the amount of sagebrush the landscape of interest could ecologically support. Areas with the potential to support sagebrush were derived from the BpS data layer that describes sagebrush pre Euro-American settlement (biophysical setting (BpS) v1.2 of LANDFIRE). This measure (1b) will provide information during evaluations of monitoring data to set the context for a given geographic area of interest. The information could also be used to inform management options for restoration, mitigation and inform effectiveness monitoring.

The identification and spatial locations of natural plant communities (vegetation) that are believed to have existed on the landscape (BpS) were constructed based on an approximation of the historical (pre Euro-American settlement) disturbance regime and how the historical disturbance regime operated on the current biophysical environment. BpS is composed of map units which are based on NatureServe's (2011) terrestrial ecological systems classification.

The ecological systems within BpS used for this monitoring framework are those ecological systems that have the capability of supporting sagebrush vegetation and could provide seasonal

habitat for the GRSG. These ecological systems are listed in **Table C.4** with the exception of the *Artemisia tridentata* ssp. *vaseyana* Shrubland Alliance and the *Quercus gambelii* Shrubland Alliance. Ecological systems selected included sagebrush species or subspecies that are included in the Sage-Grouse HAF and are found in **Attachment B**.

Attributable to the lack of any reference data, the BpS layer does not have an associated accuracy assessment. Visual inspection, however, of the BpS data reveals inconsistencies in the labeling of pixels among LANDFIRE map zones. The reason for these inconsistencies between map zones are the decision rules used to map a given ecological system will vary between map zones based on different physical, biological, disturbance and atmospheric regimes of the region. This can result in artificial edges in the map that are an artifact of the mapping process. However, metrics will be calculated at broad spatial scales using BpS potential vegetation type, not small groupings or individual pixels, therefore, the magnitude of these observable errors in the BpS layer is minor compared with the size of the reporting units. Therefore, since BpS will be used to identify broad landscape patterns of dominant vegetation, these inconsistencies will only have a minor impact on the percent sagebrush availability calculation.

LANDFIRE BpS data are not designed to be used at a local level. In reporting the percent sagebrush statistic for the various reporting units, the uncertainty of the percent sagebrush will increase as the size of the reporting unit gets smaller. LANDFIRE data should never be used at the pixel level (30 square meters) for any reporting. The smallest geographic extent use of the data for this purpose is at the PAC level and for the smallest PACs the initial percent sagebrush remaining estimate will have greater uncertainties compared with the much larger PACs.

Tracking

BLM and Forest Service will analyze and monitor sagebrush availability (Measure 1) on a bi-annual basis and it will be used to inform effectiveness monitoring and initiate adaptive management actions as necessary. The 2010 estimate of sagebrush availability will serve as the base year. An updated estimate for 2012 will be reported in 2014 after all datasets become available. The 2012 estimate will capture changes attributable to fire, agriculture, and urban development. Subsequent updates will always include new fire and agricultural data and new urban data when available. Restoration data that meets criteria of adding sagebrush areas back into the sagebrush base layer will be factored in as data allows. There will be a two year lag (approximately) between estimate generation and data use/availability (e.g., the 2014 sagebrush availability will be included in the 2016 estimate).

Future Plans

Geospatial data used to generate the sagebrush base layer will be available through BLM's EGIS Web Portal and Geospatial Gateway or through the authoritative data source. Legacy datasets will be preserved, so that trends may be calculated. Additionally, accuracy assessment data for all source datasets will be provided on the portal either spatially, where applicable, or through the metadata. Accuracy assessment information was deemed vital to share to help users understand the limitation of the sagebrush estimates and will be summarized spatially by map zone and included in the Portal.

LANDFIRE plans to begin a remapping effort in 2015. This remapping has the potential to greatly improve overall quality of the data products primarily through the use of higher quality

remote sensing datasets. Additionally, BLM and the Multi-Resolution Land Characteristics Consortium (MRLC) are working to improve the accuracy of vegetation map products for broad and mid-scale analyses through the Grass/Shrub mapping effort in partnership with the MRLC. The Grass/Shrub mapping effort applies the Wyoming multi-scale sagebrush habitat methodology (Homer et al. 2009) to spatially depict fractional percent cover estimates for five components range and west-wide. These five components are percent cover of sagebrush vegetation, percent bare ground, percent herbaceous vegetation (grass and forbs combined), annual vegetation, and percent shrubs. One of the benefits of the design of these fractional cover maps is that they facilitate monitoring “with-in” class variation (e.g., examination of declining trend in sagebrush cover for individual pixels). This “with-in” class variation can serve as one indicator of sagebrush quality that cannot be derived from LANDFIRE’s EVT information. The Grass/Shrub effort is not a substitute for fine scale monitoring, but will leverage fine scale data to support the validation of the mapping products. An evaluation will be conducted to determine if either dataset is of great enough quality to warrant replacing the existing sagebrush layers. The earliest possible date for this evaluation will not occur until 2018 or 2019 depending on data availability.

C.2.2.2 Habitat Degradation Monitoring (Measure 2)

The measure of habitat degradation will be calculated by combining the footprints of threats identified in **Table C.2**. The footprint is defined as the direct area of influence of “active” energy and infrastructure and is used as a surrogate for human activity. Thus, the footprint of habitat degradation per GRSG area will be calculated. Although these analyses will try to summarize results at the aforementioned meaningful landscape units, some may be too small to appropriately report the metrics and may be combined (smaller populations, PACs within a population, etc.). Data sources for each threat are found in **Table C.6**, Geospatial Data Sources for Habitat Degradation (Measure 2). Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure are detailed below. All datasets will be updated annually to monitor broad and mid-scale year-to-year changes and to calculate trends in habitat degradation to inform adaptive management. A 5-year summary report will be available to the USFWS.

Habitat Degradation Datasets and Assumptions:

Energy (oil and gas wells and development facilities)

This dataset will be a compilation of two oil and gas well databases: the proprietary IHS Enerdeq® database and the BLM Automated Fluid Minerals Support System (AFMSS) database (AFMSS data will be used to supplement the IHS data). Point data from wells active within the last ten years from IHS and producing wells from AFMSS will be considered as a 5 acre (2.0 ha) footprint (BLM WO 2014) centered on the well point. Plugged and abandoned wells will be removed, though only if the date of well abandonment was prior to the first day of the reporting year (i.e., for the 2010 reporting year a well must be plugged and abandoned by December 31, 2009 to be removed).

Table C.6
Geospatial Data Sources for Habitat Degradation (Measure 2)

USFWS Listing Decision Threat	Data Source	Direct Area of Influence
Agriculture	National Agriculture Statistics Service	Polygon Area
Urbanization	USGS Percent Imperviousness	Polygon Area
Wildfire	Geospatial Multi-Agency Coordination Group; Monitoring Trends in Burn Severity	Polygon Area
Conifer encroachment	LANDFIRE	Polygon Area
Energy (oil and gas wells and development facilities)	IHS; BLM (AFMSS)	5 ac (2.0 ha)
Energy (reclaimed site degradation)	IHS; BLM (AFMSS)	3 ac (1.2 ha)
Energy (coal mines)	BLM & FS data; Office of Surface Mining Reclamation and Enforcement	Polygon Area
Energy (wind towers)	Federal Aviation Administration	3 ac (1.2 ha)
Energy (solar fields)	Argonne National Laboratory	Polygon Area
Energy (geothermal)	Argonne National Laboratory	Polygon Area or 5 ac (2.0 ha)
Mining (active locatable, leasable, and salable developments)	InfoMine	Polygon Area or 5 ac (2.0 ha)
Infrastructure (roads)	ESRI StreetMap Premium	40.7-240.2 ft. (12.4-73.2 m)
Infrastructure (railroads)	Federal Railroad Administration	30.8 ft. (9.4 m)
Infrastructure (power lines)	Platts Transmission Lines	100-250 ft. (30.5-76.2 m)
Infrastructure (communication towers)	Federal Communications Commission	2.5 ac (1.0 ha)
Infrastructure (other vertical structures)	Federal Aviation Administration	2.5 ac (1.0 ha)

Additional Measure: Reclaimed Energy-related Degradation This dataset will include those wells that have been plugged and abandoned in an effort to measure energy-related degradation that has been reclaimed but not necessary fully restored to GRSG habitat. This measure will establish a baseline by using wells that have been plugged and abandoned within the last ten years from the IHS and AFMSS datasets. Time lags for lek attendance in response to infrastructure have been documented to be delayed by 2-10 years from energy development activities (Harju et al. 2010), while reclamation actions may require two or more years from the Final Abandonment Notice. Sagebrush seedling establishment may take six or more years from the point of seeding, depending on variables such as annual precipitation, annual temperature, and soil type and depth (Pyke 2011). This ten-year period is conservative, assuming some level of habitat improvement ten years after plugging. However, research by Hemstrom et al. (2002) proposes an even longer period of greater than 100 years for recovery of sagebrush habitats even with active restoration approaches. Direct area of influence will be considered 3 acres (1.2 ha) (J. Perry, personal communication February 12, 2014).

This additional layer/measure could be used at the broad and mid-scale to identify areas where sagebrush habitat and/or potential sagebrush habitat is likely still degraded and where further investigation at the fine or site-scale would be warranted to: (1) quantify the level of reclamation already conducted, and (2) evaluate the amount of restoration still required (for sagebrush habitat recovery). At a particular level (e.g., population, PACs), these areas and the reclamation efforts/success could be used to inform reclamation standards associated with future developments. Once these areas have transitioned from reclamation standards to meeting *restoration* standards, they can be added back into the sagebrush availability layer using the same methodology as described for adding restoration treatment areas lost to fire and agriculture conversion (see **Sagebrush Restoration Updates** section). This dataset will be updated annually with new plugged and abandoned well from the IHS dataset.

Energy (coal mines)

Currently there is no comprehensive dataset available that identifies the footprint of active coal mining across all jurisdictions. Therefore, point and polygon datasets will be used each year to identify coal mining locations. Data sources will be identified and evaluated annually and will include at a minimum: BLM coal lease polygons, US Energy Information Administration mine occurrence points, US Office of Surface Mining Reclamation and Enforcement (OSMRE) coal mining permit polygons (as available), and USGS Mineral Resources Data System (MRDS) mine occurrence points. These data will inform where active coal mining may be occurring. Aerial imagery will then be used to manually digitize active coal mining surface disturbance in or near these known occurrence areas. While the date of aerial imagery varies by scale, the most current data available from ESRI and/or Google will be utilized to locate (generally at 1:50,000 and below) and digitize (generally at 1:10,000 and below) active coal mine footprints. Coal mine location data source and imagery date will be documented for each digitized coal footprint polygon at the time of creation. Sub-surface facility locations (polygon or point location as available) will also be collected, if available, and included in density calculations, and added to the active surface activity layer as appropriate (if actual footprint can be located).

Energy (wind energy facilities)

This dataset will be a subset of the Federal Aviation Administration Digital Obstacles point file to include points where "Type_" = "WINDMILL". Direct area of influence of these point features will be measured by converting to a polygon dataset of three acres (1.2 ha) centered on each tower point (BLM Wind Energy Programmatic Environmental Impact Statement, 2005). Additionally, we will use Platts Power Plants and Generating Units database for transformer stations associated with wind energy sites.

Energy (solar energy facilities)

This dataset will include solar plants in existence or under construction as compiled with the proprietary Platts in the Power Plants and Generating Units database. The point data will be buffered to represent a three acre (1.2 ha) direct area of influence.

Energy (geothermal energy facilities)

This dataset will include geothermal plants in existence or under construction as compiled with the proprietary I.H.S and Platts (Power Plants and Generating Units) databases. The point data will be buffered to represent a three acre (1.2 ha) direct area of influence.

Mining (active developments; locatable, leasable, saleable)

This dataset will include active mining locations as compiled with the proprietary InfoMine® database. Other data sources will be evaluated as they are identified or become available. The point data will be buffered to represent a five acre (2.0 ha) direct area of influence, unless actual surface disturbance is available.

Infrastructure (roads)

This dataset will be compiled from the proprietary ESRI® StreetMap Premium for ArcGIS. Dataset features that will be used are: Interstates, Major Roads, and Surface Streets to capture most paved and “crowned and ditched” roads while not including “two-track” and 4-wheel-drive routes. These minor roads, while not included in our broad and mid-scale monitoring, may support a volume of traffic that can have deleterious effects to GRSG leks. It may be appropriate to consider the frequency and type of use of roads in a NEPA analysis for a proposed project. This fine/project scale analysis will require more site-specific data than is identified in this monitoring framework. The direct influence area for roads will be represented by 240.2 feet, 84.0 feet, and 40.7 feet (73.2 meters, 25.6 meters, and 12.4 meters) total widths centered on the line feature for Interstates, Major Roads, and Surface Streets respectively (Knick et al. 2011). The most current dataset will be used for each monitoring update. *Note: this is a related but different dataset as was used in the Summary of Science, Activities, Programs, and Policies That Influence the Rangewide Conservation of Greater Sage-Grouse (Manier et al., 2013). Individual BLM and Forest Service planning units may utilize different roads layers for fine and site scale monitoring.*

Infrastructure (railroads)

This dataset will be a compilation of Federal Railroad Administration (FRA) Rail Lines of the USA dataset. Non-abandoned rail lines will be used; abandoned rail lines will not be used. The direct influence area for railroads will be represented by a 30.8 feet (9.4 meters) total width (Knick et al. 2011) centered on non-abandoned railroad line feature.

Infrastructure (power lines)

This line dataset will be a compilation from EV Energy Map, Platts/Global Energy of transmission lines, substations, electric power generation plants, and energy distribution control facilities. Linear features in the dataset attributed as “buried” will be removed from the disturbance calculation. Only “In Service” lines will be used, not “Proposed” lines. Direct area of influence will be determined by the kilovolt designation: 1-199 kilovolts (100 feet; 30.5 meters), 200-399 kilovolts (150 feet; 45.7 meters), 500-699 kilovolts (200 feet; 61.0 meters), and 700-or greater kilovolts (250 feet; 76.2 meters) based on average right-of-way and structure widths.

Infrastructure (communication towers)

This point dataset will be compiled from the Federal Communications Commission (FCC) communication towers point file; all duplicate points will be removed. It will be converted to a polygon dataset by using a direct area of influence of 2.47 acres (1.0 ha) centered on each communication tower point (Knick et al. 2011).

Infrastructure (other vertical structures)

This point dataset will be compiled from the Federal Aviation Administration (FAA) Digital Obstacles point file. Points where “Type_” = “WINDMILL” will be removed. Duplicate points from the FCC communication towers point file will be removed. Remaining features will be converted to a polygon dataset using a direct area of influence of 2.47 acres (1.0 ha) centered on each vertical structure point (Knick et al. 2011).

Other developed rights-of-ways

Currently no additional data sources for other rights-of-ways have been identified; roads, power lines, railroads, pipelines, and other known linear features are represented in categories above. Our newly purchased IHS data does contain pipeline information, but further investigation is needed to determine if the dataset is comprehensive. If additional features representing human activities are identified, they will be added to monitoring reports using similar assumptions to the threats above.

Habitat Degradation Threat Combination and Calculation

The threats targeted for measuring human activity from **Table C.2**, will be converted to direct area of influence polygons as described for each threat above. These threat polygon layers will be combined and features dissolved to create one overall polygon layer representing footprints of active human activity in the range of GRSG. However, individual datasets will be preserved to ascertain which types of threats may be contributing to overall habitat degradation. Percentages will be calculated as follows: This measure has been divided into three sub-measures to describe habitat degradation on the landscape:

Measure 2a) Footprint by landscape unit: Divide area of the active/direct footprint within a GRSG area by the total area of the GRSG area. (percent disturbance in landscape unit)

Measure 2b) Active/direct footprint by historic sagebrush potential: Divide area of the active footprint that coincides with areas with historic sagebrush potential (BpS calculation from habitat availability) within a given landscape unit by the total area with sagebrush potential within the landscape unit. (percent disturbance on potential historic sagebrush in landscape unit)

Measure 2c) Active/direct footprint by current sagebrush: Divide area of the active footprint that coincides with areas of existing sagebrush (EVT calculation from habitat availability) within a given landscape unit by the total area that is current sagebrush within the landscape unit. (percent disturbance on current sagebrush in landscape unit)

C.2.2.3 Density of Energy and Mining (Measure 3)

The measure of density of energy and mining will be calculated by combining the locations of threats identified in **Table C.2**. This will provide an estimate of intensity of human activity or intensity of habitat degradation. The number of energy facilities and mining locations will be summed and divided by the area of meaningful landscape units to calculate density of these activities. Data sources for each threat are found in **Table C.6**. Specific assumptions (inclusion criteria for data, width/area assumptions for point and line features, etc.) and methodology for each threat, and the combined measure are detailed below. All datasets will be updated annually

to monitor broad and mid-scale year-to-year changes and 5-year (or longer) trends in habitat degradation.

Density of Energy and Mining Datasets and Assumptions:

Energy (oil and gas wells and development facilities)

[See **Section C.2.2.2**]

Energy (coal mines)

[See **Section C.2.2.2**]

Energy (wind towers)

[See **Section C.2.2.2**]

Energy (solar energy facilities)

[See **Section C.2.2.2**]

Energy (geothermal energy facilities)

[See **Section C.2.2.2**]

Mining (active developments; locatable, leasable, saleable)

[See **Section C.2.2.2**]

Density of Energy and Mining Threat Combination and Calculation:

Datasets for energy and mining will be collected in two primary forms: point locations (e.g. wells) and polygon areas (e.g. surface coal mining). The following rule set will be used to calculate density for meaningful landscape units including standard grids and per polygon:

1. Point locations will be preserved; no additional points will be removed beyond the methodology described above. Energy facilities in close proximity (an oil well close to a wind tower) will be retained.
2. Polygons will not be merged, nor features further dissolved. Thus, overlapping facilities will be retained, such that each individual threat will be a separate polygon data input for the density calculation.
3. The analysis unit (polygon or 640 acre section in a grid) will be the basis for counting the number of mining or energy facilities per unit area. Within the analysis unit all point features will be summed, and any individual polygons will be counted as one (e.g.; a coal mine will be counted as one facility within population). Where polygon features overlap multiple units (polygons or pixels), the facility will be counted as one in each unit where the polygon occurs (e.g. a polygon crossing multiple 640 acre sections would be counted as one in each 640 acre section for a density per 640 acre section calculation).
4. In methodologies with different sized units (e.g. MZs, populations, etc.) raw counts will be converted to densities by dividing by the total area of the unit. Typically this will be measured as facilities per 640 acres.

5. For uniform grids, raw facility counts will be reported. Typically this number will also be converted to facilities per 640 acres.
6. Reporting may include summaries beyond the simple ones above. Zonal statistics may be used to smooth smaller grids to help with display and conveying information about areas within meaningful landscape units that have high energy and/or mining activity.
7. Additional statistics for each defined unit may also include adjusting the area to only include area with the historic potential for sagebrush (BpS) or areas currently sagebrush (EVT).

Key habitat degradation individual datasets and threat combination datasets will be available through BLM's EGIS Web Portal and Geospatial Gateway. Legacy datasets will be preserved, so that trends may be calculated.

C.2.3 Population (Demographics) Monitoring

State wildlife management agencies are responsible for monitoring GRSG populations within their respective states. WAFWA will coordinate this collection of annual population data by state agencies. These data will be made available to BLM and Forest Service through the Sage-grouse Implementation Memorandum of Understanding (2013) signed by WAFWA, BLM, Forest Service, NRCS, USGS, Farm Service Agency, and USFWS. An amendment to the MOU (2014) will outline a process, timeline, and responsibilities for regular data sharing of GRSG population and/or habitat information. The Landscape Conservation Management and Analysis Portal (LC MAP) will be used as the instrument for state wildlife agencies to annually submit population data and analyses that will be accessed by the BLM through a data sharing agreement. Population areas were refined from the COT report by individual state wildlife agencies to create a consistent naming nomenclature for future data analyses. These population data will be used for analysis at the applicable scale to supplement habitat effectiveness monitoring of management actions and inform the adaptive management responses.

C.2.4 Effectiveness Monitoring

Effectiveness monitoring will provide the information to evaluate BLM and Forest Service actions to reach the objective of the planning strategy (BLM Instruction Memorandum 2012-044), to conserve GRSG populations and its habitat, and the objectives in this Utah Greater Sage-Grouse LUPA/EIS. Effectiveness monitoring methods described here will encompass multiple larger scales, from areas as large as the WAFWA MZ to the scale of this LUP. Effectiveness information used for these larger scale evaluations includes all-lands in the area of interest regardless of surface ownership/ management and will help inform where finer scale evaluations are needed such as population areas smaller than a LUP or PACs within a LUP (described in **Section C.3**). The information will also include the trend of disturbance within these areas of interest which informs the need to initiate adaptive management responses as described in this Utah Greater Sage-Grouse LUPA/EIS.

Effectiveness monitoring reported for these larger areas provides the context to then conduct effectiveness monitoring at finer scales and helps focus scarce resources to areas experiencing habitat loss, degradation, or population declines. These large area evaluations would not exclude

the need for concurrent finer scale evaluations where habitat or population anomalies have been identified through some other means.

To determine the effectiveness of the GRSG planning strategy, the BLM and Forest Service will evaluate the answers to the following questions and prepare a broad and mid-scale effectiveness report:

1. Sagebrush Availability and Condition:
 - a. What is the amount of sagebrush availability and the change in the amount and condition of sagebrush?
 - b. What is the existing amount of sagebrush on the landscape and the change in the amount relative to the pre Euro-American historical distribution of sagebrush (BpS)?
 - c. What is the trend and condition of the indicators describing sagebrush characteristics important to GRSG?
2. Habitat Degradation and Intensity of Activities:
 - a. What is the amount of habitat degradation and the change in that amount?
 - b. What is the intensity of activities and the change in the intensity?
 - c. What is the amount of reclaimed energy-related degradation and the change in the amount?
3. What is the population estimation of GRSG and the change in the population estimation?
4. How are the BLM and Forest Service contributing to changes in the amount of sagebrush?
5. How are the BLM and Forest Service contributing to disturbance?

The compilation of broad and mid-scale data (and population trends as available) into an effectiveness monitoring report will occur on a 5-year reporting schedule, which may be accelerated to respond to critical emerging issues (in consultation with USFWS and state wildlife agencies). In addition, effectiveness monitoring results will be used to identify emerging issues and research needs and will be consistent with and inform the BLM and the Forest Service adaptive management strategy (see “Adaptive Management” section of the EIS).

To determine the effectiveness of the GRSG objectives of this Utah Greater Sage-Grouse LUPA/EIS, the BLM and Forest Service will evaluate the answers to the following questions and prepare a plan effectiveness report:

1. Is this plan meeting the GRSG habitat objectives?
2. Are GRSG areas within the land use plan meeting, or making progress towards meeting, land health standards, including the Special Status Species/ wildlife habitat standard?

3. Is the plan meeting the disturbance objective(s) within GRSG areas?
4. Are the GRSG populations within this plan boundary and within the GRSG areas increasing, stable, or declining?

The effectiveness monitoring report for this LUP will occur on a 5-year reporting schedule (see **Attachment A**) or more often if habitat or population anomalies identify the need for an evaluation to facilitate adaptive management or respond to critical emerging issues. Data will be made available through the BLM's EGIS Web Portal and the Geospatial Gateway.

Methods: At the broad and mid- biological scales (PACs and above) the BLM and the Forest Service will summarize the vegetation, disturbance, and population data (when available). Although the analysis will try to summarize results for PACs within each GRSG population, some populations may be too small to appropriately report the metrics and may need to be combined to provide an estimate with an acceptable level of accuracy or they will be flagged for more intensive monitoring by the appropriate landowner or agency. The BLM and Forest Service will then analyze monitoring data to detect the trend in the amount of sagebrush; the condition of the vegetation in the GRSG areas (MacKinnon et al. 2011); the trend in the amount of disturbance; the change in disturbed areas due to successful restoration; and the amount of new disturbance the BLM or Forest Service has permitted. This information could be supplemented with population data to understand the correlation between habitat and PACs within a population when population data are available. This overall effectiveness evaluation must consider the lag effect response of populations to habitat changes (Garton et al. 2011).

Calculating Question 1, Planning Strategy Effectiveness: The amount of sagebrush available in the large area of interest will utilize the information from Measure 1a (Section B1, Sagebrush Availability) and calculate the change from the 2012 Baseline to the end date of the reporting period. To calculate the change in the amount of sagebrush on the landscape to compare with the historical areas with potential to support sagebrush, the information from Measure 1b (Section C.2.2.1, Sagebrush Availability) will be utilized. To calculate the trend in the condition of sagebrush at the mid-scale, three sources of data will be utilized: the BLM Grass/ Shrub mapping effort (Section C.2.2.1, Future Plans); the results from the calculation of the landscape indicators such as patch size (described below); and the BLM Landscape Monitoring Framework (LMF) and GRSG intensification effort (also described below). The LMF and GRSG intensification effort data is collected in a statistical sampling framework that allows calculation of indicator values at multiple scales.

Beyond the importance of sagebrush availability to GRSG, the mix of sagebrush patches on the landscape at the broad and mid-scale provides the life requisite of space for GRSG dispersal needs (see the HAF). The configuration of sagebrush habitat patches and the land cover or land use between the habitat patches at the broad and mid-scales also defines suitability. There are three significant habitat indicators that influence habitat use, dispersal and movement across populations: the size and number of habitat patches, the connectivity of habitat patches (linkage areas), and habitat fragmentation (scope of unsuitable and non-habitats between habitat patches). The most appropriate commercial software to measure patch dynamics, connectivity, and fragmentation at the broad and mid-scales will be utilized using the same data layers derived for sagebrush availability.

The BLM initiated the LMF in 2011 in cooperation with NRCS. The objective of the LMF effort is to provide non-biased estimates of vegetation and soil condition and trend using a statistically balanced sample design across BLM lands. Recognizing that GRSG populations are more resilient where the sagebrush plant community has certain characteristics unique to a particular life stage of GRSG (Knick and Connelly 2011; Stiver et al. 2015 *In Press*), a group of GRSG habitat and sagebrush plant community subject matter experts identified those vegetation indicators collected at LMF sampling points that inform GRSG habitat needs. The experts represented BLM, USFWS, WAFWA, NRCS, ARS, state wildlife agencies, and academia. The common indicators that were identified include: species composition, foliar cover, height of the tallest sagebrush and herbaceous plant, intercanopy gap, percent of invasive species, sagebrush shape, and bare ground. To increase the precision of estimates of sagebrush conditions within the range of GRSG, additional plot locations in occupied GRSG habitat (Sage-grouse Intensification) were added in 2013. The common indicators are also collected on sampling locations in the NRCS Rangeland Monitoring Survey.

The Sage-grouse Intensification baseline data will be collected over a five year period and an annual Sage-grouse Intensification report will be prepared describing the status of the indicators. Beginning in year six, the annual status report will be accompanied with a trend report which will be available on an annual basis thereafter contingent upon continuation of the current monitoring budget. This information, in combination with the Grass/Shrub mapping information, the mid-scale habitat suitability indicator measures, and the sagebrush availability information will be used to answer Question 1 of the Planning Strategy Effectiveness Report.

Calculating Question 2, Planning Strategy Effectiveness: The amount of habitat degradation and the intensity of the activities in the area of interest will utilize the information from Measures 2 and 3 (**Section C.2.2.2, Habitat Degradation**). The amount of reclaimed energy-related degradation will be collected by the FO on plugged and abandoned and oil/gas well sites. The data will demonstrate that the reclaimed sites have yet to meet the habitat restoration objectives for GRSG habitat. This information, in combination with the amount of habitat degradation, will be used to answer Question 2 of the Planning Strategy Effectiveness Report.

Calculating Question 3, Planning Strategy Effectiveness: The change in GRSG estimated populations will be calculated from data provided by the state wildlife agencies, when available. This population data (**Section C.2.3, Population (Demographics) Monitoring**) will be used to answer Question 3 of the Planning Strategy Effectiveness Report.

Calculating Question 4, Planning Strategy Effectiveness: The estimated contribution by the BLM or the Forest Service to the change in the amount of sagebrush in the area of interest will utilize the information from Measure 1a (**Section C.2.2.1, Sagebrush Availability**). This measure is derived from the national data sets that remove sagebrush (**Table C.2**). To determine the relative contribution of the BLM and Forest Service management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for this measure in area of interest. This information will be used to answer Question 4 of the Planning Strategy Effectiveness Report.

Calculating Question 5, Planning Strategy Effectiveness: The estimated contribution by the BLM or the Forest Service to the change in the amount of disturbance in the area of interest will utilize

the information from Measure 2a (**Section C.2.2.2**, Habitat Degradation, Percent) and Measure 3 **Section C.2.2.2**, Habitat Degradation, Intensity). These measures are all derived from the national disturbance data sets that degrade habitat (**Table C.2**). To determine the relative contribution of the BLM and Forest Service management, the current Surface Management Agency geospatial data layer will be used to differentiate the amount of change for each management agency for these two measures in area of interests. This information will be used to answer Question 5 of the Planning Strategy Effectiveness Report.

Answering the five questions that determine the effectiveness of the BLM and Forest Service Planning Strategy will identify areas that appear to be meeting the objectives of the strategy and will facilitate identification of population areas for more detailed analysis. Conceptually, if the broad scale monitoring identifies increasing sagebrush availability and improving vegetation conditions, decreasing disturbance, and a stable or increasing population for the area of interest, there is evidence the objectives of the Planning Strategy to maintain populations and their habitats have been met. Conversely, where information indicates sagebrush is decreasing and vegetation conditions are degrading, disturbance in GRSG areas is increasing, and populations are declining relative to the baseline, there is evidence the objectives of the Planning Strategy are not being achieved. This would likely result in a more detailed analysis and could be the basis for implementing more restrictive adaptive management measures.

At the Land Use Plan area, the BLM and the Forest Service will summarize the vegetation, disturbance, and population data to determine if the LUP is meeting the plan objectives. Effectiveness information used for these evaluations includes BLM and Forest Service surface management areas and will help inform where finer scale evaluations are needed such as seasonal habitats, corridors, or linkage areas. The information should also include the trend of disturbance within the GRSG areas which informs the need to initiate adaptive management responses as described in this Utah Greater Sage-Grouse LUPA/EIS.

Calculating Question 1, Land Use Plan Effectiveness: The condition of vegetation and the allotments meeting Land Health Standards in GRSG areas will both be used as part of the determination of the effectiveness of the LUP in meeting the vegetation objectives in GRSG habitat set forth in this LUP. The collection of this data will be the responsibility of the Field Office/Ranger District. In order for this data to be consistent and comparable, common indicators, consistent methods, and a nonbiased sampling framework should be implemented following the principles in the AIM Strategy (Toevs et al. 2011; BLM TN 440 BLM Core Indicators and Methods), in the BLM Technical Reference Interpreting Indicators of Rangeland Health (Pellant et al. 2005), and the HAF (Stiver et al. 2015 *In Press*) or other approved WAFWA MZ consistent guidance to measure and monitor GRSG habitats. The analysis of this information will be used to answer Question 1 of the Land Use Plan Effectiveness Report.

Calculating Question 2, Land Use Plan Effectiveness: The amount of habitat disturbance in GRSG areas identified in this LUP will be used as part of the determination of the effectiveness of the LUP in meeting the disturbance objectives set forth in this LUP. National data sets can be used to calculate the amount of disturbance, but Field Office data will likely increase the accuracy of this estimate. This information will be used to answer Question 2 of the Land Use Plan Effectiveness Report.

Calculating Question 3, Land Use Plan Effectiveness: The change in estimated GRSG populations will be calculated from data provided by the state wildlife agencies, when available and will part of the determination of effectiveness. This population data (**Section C.2.3**) will be used to answer Question 3 of the Land Use Plan Effectiveness Report.

Results of the effectiveness monitoring process for the land use plan will be used to inform the need for finer scales investigations, initiate Adaptive Management actions as described in **Appendix B**, initiate causation determination, and/ or determine if changes to management decisions are warranted. The measures used at the broad and mid-scales will provide a suite of characteristics from which the effectiveness of the adaptive management strategy will be evaluated.

C.3 FINE AND SITE SCALES

Fine scale (third order) habitat selected by GRSG is described as the physical and geographic area within home ranges including breeding, summer, and winter periods. At this level, habitat suitability monitoring should address factors that affect GRSG use of, and movements between, seasonal use areas. The habitat monitoring at fine and site scale (fourth order) should focus on indicators to describe seasonal home ranges for GRSG associated with a lek, or lek group within a population or subpopulation area. Fine and site scale monitoring should inform LUP effectiveness monitoring (see **Section C.2.4**) and the hard and soft triggers identified in the Adaptive Management section of the land use plan.

Site-scale habitat selected by GRSG is described as the more detailed vegetation characteristics of seasonal habitats. Habitat suitability characteristics include canopy cover and height of sagebrush and the associated understory vegetation as well as vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush that may support GRSG habitat needs during different stages in their annual cycle.

As described in the Conclusion (**Section C.4**), details and application of monitoring at the fine and site scales will be described in the implementation-level monitoring plan of the Utah Greater Sage-Grouse LUPA/EIS. The need for fine and site-scale specific habitat monitoring will vary by area depending on proposed projects, existing conditions, habitat variability, threats, and land health. Examples of fine and site-scale monitoring include: habitat vegetation monitoring to assess current habitat conditions; monitoring and evaluating the success of projects targeting GRSG habitat enhancement and/or restoration; and habitat disturbance monitoring to provide localized disturbance measures to inform proposed project review and potential mitigation for project impacts. Monitoring plans should incorporate the principles outlined in the BLM AIM Strategy (Toevs et al. 2011) and AIM-Monitoring: A Component of the Assessment, Inventory, and Monitoring Strategy (Taylor et al. *in press*). Approved monitoring methods are:

- BLM Core Terrestrial Indicators and Methods, (MacKinnon et al. 2011)
- BLM Technical Reference Interpreting Indicators of Rangeland Health (Pellant et al. 2005); and
- Sage-Grouse HAF.

Other state-specific disturbance tracking models include: the BLM Wyoming Density and Disturbance Calculation Tool⁵; and the BLM White River Data Management System (WRDMS) in development with the USGS. Population monitoring data (in cooperation with state wildlife agencies) should be included during evaluation of the effectiveness of actions taken at the fine and site scales.

Fine and site scale GRSG habitat suitability indicators for seasonal habitats are identified in the HAF. The HAF has incorporated the Connelly et al. (2000) GRSG guidelines as well as many of the core indicators in the assessment, inventory and monitoring (AIM) strategy (Toevs et al. 2011). There may be a need to develop adjustments to height and cover or other site suitability values described in the HAF and any such adjustments should be ecologically defensible. However, to foster consistency, adjustments to site suitability values at the local scale should be avoided unless there is strong, scientific justification for doing so and that justification should be provided. WAFWA MZ adjustments must be supported by regional plant productivity and habitat data for the floristic province. If adjustments are made to the site scale indicators they must be made using data from the appropriate seasonal habitat designation (breeding/nesting, brood-rearing, winter) collected from GRSG studies found in the relevant area and peer reviewed by the appropriate wildlife management agency(s) and researchers.

When conducting land health assessments, at a minimum, the BLM should follow Interpreting Indicators of Rangeland Health (Pellant et al. 2005) and the BLM Core Terrestrial Indicators and Methods, (MacKinnon et al. 2011). If the assessment is being conducted in GRSG areas, the BLM should collect additional data to inform the HAF indicators that have not been collected using the above methods. Implementation of the principles outlined in the AIM strategy will allow the data to be used to generate unbiased estimates of condition across the area of interest; facilitate consistent data collection and roll-up analysis among management units; will be useful to provide consistent data to inform the classification and interpretation of imagery; and will provide condition and trend of the indicators describing sagebrush characteristics important to GRSG habitat (see **Section C.2.4**).

C.4 CONCLUSION

This Greater Sage-grouse Monitoring Framework was developed for all of the Final Environmental Impact Statements involved in the GRSG planning effort. As such, it describes the monitoring activities at the broad and mid-scales and sets the stage for BLM and Forest Service to collaborate with partners/other agencies to develop the Utah Greater Sage-Grouse LUPA/EIS Monitoring Plan using this Greater Sage-grouse Monitoring Framework as a guide.

⁵ <http://ddct.wygisc.org/>

C.5 THE GREATER SAGE-GROUSE DISTURBANCE AND MONITORING SUB-TEAM MEMBERSHIP

Gordon Toevs (BLM -WO)	Paul Makela (BLM-ID)
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David Wood (BLM-NOC)	Glenn Frederick (BLM-OR)
Vicki Herren (BLM-NOC)	Robert Skorkowsky (Forest Service)
Matt Bobo (BLM-NOC)	Dalinda Damm (Forest Service)
Michael "Sherm" Karl (BLM-NOC)	Rob Mickelsen (Forest Service)
Emily Kachergis (BLM-NOC)	Tim Love (Forest Service)
Doug Havlina (BLM-NIFC)	Pam Bode (Forest Service)
Mike Pellant (BLM-GBRI)	Lief Wiechman (USFWS)
John Carlson (BLM-MT)	Lara Juliusson (USFWS)
Jenny Morton (BLM -WY)	
Robin Sell (BLM-CO)	

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ATTACHMENT A: AN OVERVIEW OF MONITORING COMMITMENTS

	Broad and Mid-scales					Fine & Site Scales
	Implement- ation	Sagebrush Availability	Habitat Degrada- tion	Population	Effective- ness	
<i>How will the data be used?</i>	Tracking and documenting implementation of land use plan decisions and inform adaptive management	Tracking changes in land cover (sagebrush) and inform adaptive management	Tracking changes in disturbance (threats) to GRSG habitat and inform adaptive management	Tracking trends in GRSG populations (and/or leks; as determined by state wildlife agencies) and inform adaptive management	Characterizing the relationship among disturbance, implementation actions, and sagebrush metrics and inform adaptive management	Measuring seasonal habitat, connectivity at the fine scale, and habitat conditions at the site scale, calculating disturbance and inform adaptive management
<i>Who is collecting the data?</i>	BLM FO and Forest Service Forest	NOC and NIFC	National data sets (NOC), BLM FOs and Forest Service Forests as applicable	State wildlife agencies through WAFWA	Comes from other broad and mid-scale monitoring types, analyzed by the NOC	BLM FO and SO, Forest Service Forests and RO (with partners) including disturbance
<i>How often are the data collected, reported and made available to USFWS?</i>	Collected and reported annually; summary every 5 years	Updated and changes reported annually; summary reports every 5 years	Collected and changes reported annually; summary reports every 5 years	State data reported annually per WAFWA MOU; summary reports every 5 years	Collected and reported every 5 years (coincident with LUP evaluations)	Collection and trend analysis ongoing, reported every 5 years or as needed to inform adaptive management
<i>What is the spatial scale?</i>	Summarized by LUP with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by PACs (size dependent) with flexibility for reporting by other units	Summarized by MZ, and LUP with flexibility for reporting by other units (e.g., PAC)	Variable (e.g., projects and seasonal habitats)
<i>What are the potential personnel and budget impacts?</i>	Additional capacity or re-prioritization of ongoing monitoring work and	At a minimum, current skills and capacity must be maintained; data mgmt cost are TBD	At a minimum, current skills and capacity must be maintained; data mgmt	No additional personnel or budget impacts for BLM or Forest Service	Additional capacity or re-prioritization of ongoing monitoring work and budget	Additional capacity or re-prioritization of ongoing monitoring work and budget

	Broad and Mid-scales					Fine & Site Scales
	Implement- ation	Sagebrush Availability	Habitat Degrada- tion	Population	Effective- ness	
	budget realignment		and data layer purchase cost are TBD		realignment	realignment
<i>Who has primary and secondary responsibi- lities for reporting?</i>	BLM FO & SO; Forest Service Forest & RO BLM & Forest Service Planning	NOC WO	NOC BLM SO, Forest Service RO & appropriate programs	WAFWA & state wildlife agencies BLM SO, Forest Service RO, NOC	Broad and mid-scale at the NOC, LUP at BLM SO, Forest Service RO	BLM FO & Forest Service Forests BLM SO & Forest Service RO
<i>What new processes / tools are needed?</i>	National implementa- tion data sets and analysis tools	Updates to national land cover data	Data standards and roll-up methods for these data	Standards in population monitoring (WAFWA)	Reporting methodologies	Data standards data storage; and reporting

ATTACHMENT B: LIST OF ALL SAGEBRUSH SPECIES AND SUBSPECIES INCLUDED IN THE SELECTION CRITERIA FOR BUILDING THE EVT AND BPS LAYERS

- *Artemisia arbuscula* subspecies *longicaulis*
- *Artemisia arbuscula* subspecies *longiloba*
- *Artemisia bigelovii*
- *Artemisia nova*
- *Artemisia papposa*
- *Artemisia pygmaea*
- *Artemisia rigida*
- *Artemisia spinescens*
- *Artemisia tripartita* subspecies *rupicola*
- *Artemisia tripartita* subspecies *tripartita*
- *Tanacetum nuttallii*
- *Artemisia cana* subspecies *bolanderi*
- *Artemisia cana* subspecies *cana*
- *Artemisia cana* subspecies *viscidula*
- *Artemisia tridentata* subspecies *wyomingensis*
- *Artemisia tridentata* subspecies *tridentata*
- *Artemisia tridentata* subspecies *vaseyana*
- *Artemisia tridentata* subspecies *spiciformis*
- *Artemisia tridentata* subspecies *xericensis*
- *Artemisia tridentata* variety *pauciflora*
- *Artemisia frigida*
- *Artemisia pedatifida*

ATTACHMENT C: USER AND PRODUCER ACCURACIES FOR AGGREGATED ECOLOGICAL SYSTEMS WITHIN LANDFIRE MAP ZONES

LANDFIRE Map Zone Name	User Accuracy	Producer Accuracy	% of Map Zone within Historic Schroeder
Wyoming Basin	76.9%	90.9%	98.5%
SNAKE RIVER PLAIN	68.8%	85.2%	98.4%
Missouri River Plateau	57.7%	100.0%	91.3%
Grand Coulee Basin of the Columbia Plateau	80.0%	80.0%	89.3%
Wyoming Highlands	75.3%	85.9%	88.1%
Western Great Basin	69.3%	75.4%	72.9%
Blue Mountain Region of the Columbia Plateau	85.7%	88.7%	72.7%
Eastern Great Basin	62.7%	80.0%	62.8%
Northwestern Great Plains	76.5%	92.9%	46.3%
Northern Rocky Mountains	72.5%	89.2%	42.5%
Utah High Plateaus	81.8%	78.3%	41.5%
Colorado Plateau	65.3%	76.2%	28.8%
Middle Rocky Mountains	78.6%	73.3%	26.4%
Cascade Mountain Range	57.1%	88.9%	17.3%
Sierra Nevada Mountain Range	0.0%	0.0%	12.3%
Northwestern Rocky Mountains	66.7%	60.0%	7.3%
Southern Rocky Mountains	58.6%	56.7%	7.0%
Northern Cascades	75.0%	75.0%	2.6%
Mogollon Rim	66.7%	100.0%	1.7%
Death Valley Basin	0.0%	0.0%	1.2%

There are two anomalous map zones with 0 percent user and producer accuracies attributable to no available reference data for the ecological systems of interest.

Producer's accuracy is a reference-based accuracy that is computed by looking at the predictions produced for a class and determining the percentage of correct predictions. In other words, if I know that a particular area is sagebrush (I've been out on the ground to check), what is the probability that the digital map will correctly identify that pixel as sagebrush? **Omission Error** equates to excluding a pixel that should have been included in the class (i.e., omission error = 1 - producers accuracy).

User's accuracy is a map-based accuracy that is computed by looking at the reference data for a class and determining the percentage of correct predictions for these samples. For example, if I select any sagebrush pixel on the classified map, what is the probability that I'll be standing in a sagebrush stand when I visit that pixel location in the field? **Commission Error** equates to including a pixel in a class when it should have been excluded (i.e., commission error = 1 - user's accuracy).

Appendix D

Mitigation Strategy:
Utah Greater Sage-Grouse LUPA

APPENDIX D

MITIGATION STRATEGY: UTAH GREATER SAGE-GROUSE LUPA

INTRODUCTION

In undertaking US Department of the Interior, Bureau of Land Management (BLM) and US Department of Agriculture, Forest Service (Forest Service) management actions, and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and degradation, the BLM and Forest Service will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Actions which result in habitat loss and degradation include those identified as threats which contribute to GRSG disturbance as identified by the USFWS in its 2010 listing decision (75 *Federal Register* 13910) and shown in Table C.2 in the Greater Sage-Grouse Monitoring Framework (Appendix C of the Utah Greater Sage-Grouse Proposed LUPA/Final EIS). Exceptions to net conservation gain for GRSG may be made for vegetation treatments to benefit Utah prairie dog.

Mitigation will follow the regulations from the White House Council on Environmental Quality (40 CFR 1508.20; e.g. avoid, minimize, and compensate), hereafter referred to as the mitigation hierarchy. If impacts from BLM and Forest Service management actions and authorized third party actions that result in habitat loss and degradation remain after applying avoidance and minimization measures (i.e. residual impacts), then compensatory mitigation projects will be used to provide a net conservation gain to the species. Any compensatory mitigation will be durable, timely, and in addition to that which would have resulted without the compensatory mitigation (see Glossary Terms).

The BLM and Forest Service, via the Western Association of Fish and Wildlife Agencies (WAFWA) Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy that will inform the National Environmental Policy Act (NEPA) decision making process including the application of the mitigation hierarchy for BLM and Forest Service management actions and third party actions that result in habitat loss and degradation. A robust and transparent Regional Mitigation Strategy

will contribute to Greater Sage-Grouse (GRSG) habitat conservation by reducing, eliminating, or minimizing threats and compensating for residual impacts to GRSG and its habitat.

The BLM's Regional Mitigation Manual MS-1794 serves as a framework for developing and implementing a Regional Mitigation Strategy. The following sections provide additional guidance specific to the development and implementation of a WAFWA Management Zone Regional Mitigation Strategy.

DEVELOPING A REGIONAL MITIGATION STRATEGY

The BLM and Forest Service, via the WAFWA Management Zone Greater Sage-Grouse Conservation Team, will develop a WAFWA Management Zone Regional Mitigation Strategy to guide the application of the mitigation hierarchy for BLM and Forest Service management actions and third party actions that result in habitat loss and degradation. The Strategy should consider any State-level GRSG mitigation guidance that is consistent with the requirements identified in this appendix. The Regional Mitigation Strategy should be developed in a transparent manner, based on the best science available and standardized metrics.

As described in Chapter 2 of the Utah Greater Sage-Grouse Proposed LUPA/Final EIS, the BLM and Forest Service will establish a WAFWA Management Zone Greater Sage-Grouse Conservation Team to help guide the conservation of GRSG, within 90 days of the issuance of the record of decision (ROD). The Strategy will be developed within one year of the issuance of the ROD.

The Regional Mitigation Strategy should include mitigation guidance on avoidance, minimization, and compensation, as follows:

Avoidance

- Include avoidance areas (e.g. right-of-way avoidance/exclusion areas, no surface occupancy areas) already included in laws, regulations, policies, and/or land use plans (e.g. BLM resource management plans, forest plans, and state plans); and
- Include any potential, additional avoidance actions (e.g. additional avoidance best management practices) with regard to GRSG conservation.

Minimization

- Include minimization actions (e.g. required design features and best management practices) already included in laws, regulations, policies, land use plans, and/or land-use authorizations; and
- Include any potential, additional minimization actions (e.g. additional minimization best management practices) with regard to GRSG conservation.

Compensation

- Include discussion of impact/project valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and program administration. Each of these topics is discussed in more detail below.

– Residual Impact and Compensatory Mitigation Project Valuation Guidance

- A common standardized method should be identified for estimating the value of the residual impacts and value of the compensatory mitigation projects, including accounting for any uncertainty associated with the effectiveness of the projects.
- This method should consider the quality of habitat, scarcity of the habitat, and the size of the impact/project.
- For compensatory mitigation projects, consideration of durability (see Glossary Terms), timeliness (see Glossary Terms), and the potential for failure (e.g. uncertainty associated with effectiveness) may require an upward adjustment of the valuation.
- The resultant compensatory mitigation project will, after application of the above guidance, result in proactive conservation measures for GRSG (consistent with BLM Manual 6840 – Special Status Species Management, section .02).

– Compensatory Mitigation Options

- Options for implementing compensatory mitigation should be identified, such as:
 - Utilizing certified mitigation/conservation bank or credit exchanges.
 - Contributing to an existing mitigation/conservation fund.
 - Authorized-user conducted mitigation projects.
- For any compensatory mitigation project, the investment must be additional (i.e. additionality: the conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project).

– Compensatory Mitigation Siting

- Sites should be in areas that have the potential to yield a net conservation gain to the GRSG, regardless of land ownership.
- Sites should be durable (see Glossary Terms).
- Sites identified by existing plans and strategies (e.g. fire restoration plans, invasive species strategies, healthy land focal areas) should be considered, if those sites have the potential to yield a net conservation gain to GRSG and are durable.

– Compensatory Mitigation Project Types and Costs

- Project types should be identified that help reduce threats to GRSG (e.g. protection, conservation, and restoration projects).
- Each project type should have a goal and measurable objectives.
- Each project type should have associated monitoring and maintenance requirements, for the duration of the impact.

- To inform contributions to a mitigation/conservation fund, expected costs for these project types (and their monitoring and maintenance), within the WAFWA Management Zone, should be identified.
- Compensatory Mitigation Compliance and Monitoring
 - Mitigation projects should be inspected to ensure they are implemented as designed, and if not, there should be methods to enforce compliance.
 - Mitigation projects should be monitored to ensure that the goals and objectives are met and that the benefits are effective for the duration of the impact.
- Compensatory Mitigation Reporting
 - Standardized, transparent, scalable, and scientifically-defensible reporting requirements should be identified for mitigation projects.
 - Reports should be compiled, summarized, and reviewed in the WAFWA Management Zone in order to determine if GRSG conservation has been achieved and/or to support adaptive management recommendations.
- Compensatory Mitigation Program Implementation Guidelines
 - Guidelines for implementing the State-level compensatory mitigation program should include holding and applying compensatory mitigation funds, operating a transparent and credible accounting system, certifying mitigation credits, and managing reporting requirements.

INCORPORATING THE REGIONAL MITIGATION STRATEGY INTO SUBSEQUENT ANALYSES

The BLM and Forest Service will include the avoidance, minimization, and compensatory recommendations from the Regional Mitigation Strategy in one or more of the NEPA analysis alternatives for BLM and Forest Service management actions and third party actions that result in habitat loss and degradation and the appropriate mitigation actions will be carried forward into the decision.

IMPLEMENTING A COMPENSATORY MITIGATION PROGRAM

The BLM and Forest Service need to ensure that compensatory mitigation is strategically implemented to provide a net conservation gain to the species, as identified in the Regional Mitigation Strategy. In order to align with existing compensatory mitigation efforts, this compensatory mitigation program will be managed at a state level (as opposed to a WAFWA Management Zone, a Field Office, or a Forest), in collaboration with our partners (e.g. federal, tribal, and state agencies).

To ensure transparent and effective management of the compensatory mitigation funds, the BLM and Forest Service will enter into a contract or agreement with a third-party to help manage the State-level compensatory mitigation funds, within one year of the issuance of the ROD. The selection of the third-party compensatory mitigation administrator will conform to all relevant laws, regulations, and policies. The BLM and Forest Service will remain responsible for making decisions that affect federal lands.

GLOSSARY TERMS

Additionality. The conservation benefits of compensatory mitigation are demonstrably new and would not have resulted without the compensatory mitigation project. (adopted and modified from BLM Manual Section 1794).

Avoidance mitigation. Avoiding the impact altogether by not taking a certain action or parts of an action. (40 CFR 1508.20(a)) (e.g., may also include avoiding the impact by moving the proposed action to a different time or location.)

Compensatory mitigation. Compensating for the (residual) impact by replacing or providing substitute resources or environments. (40 CFR 1508.20)

Compensatory mitigation projects. The restoration, creation, enhancement, and/or preservation of impacted resources (adopted and modified from 33 CFR 332), such as on-the-ground actions to improve and/or protect habitats (e.g. chemical vegetation treatments, land acquisitions, conservation easements). (adopted and modified from BLM Manual Section 1794).

Compensatory mitigation sites. The durable areas where compensatory mitigation projects will occur. (adopted and modified from BLM Manual Section 1794).

Durability (protective and ecological). The maintenance of the effectiveness of a mitigation site and project for the duration of the associated impacts, which includes resource, administrative/legal, and financial considerations. (adopted and modified from BLM Manual Section 1794).

Minimization mitigation. Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (40 CFR 1508.20 (b))

Net conservation gain. The actual benefit or gain above baseline conditions.

Residual impacts. Impacts that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Timeliness. The lack of a time lag between impacts and the achievement of compensatory mitigation goals and objectives (BLM Manual Section 1794).

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Appendix E

Greater Sage-Grouse Disturbance Cap Guidance

APPENDIX E

GREATER SAGE-GROUSE DISTURBANCE CAP GUIDANCE

INTRODUCTION

In the US Fish and Wildlife Service's (USFWS) 2010 listing decision for Greater Sage-Grouse (GRSG), the USFWS identified 18 threats contributing to the destruction, modification, or curtailment of the GRSG's habitat or range (75 *Federal Register* 13910 2010). The 18 threats have been aggregated into three measures. The three measures are:

- Sagebrush availability (percent of sagebrush per unit area)
- Habitat degradation (percent of human activity per unit area)
- Density of energy and mining (facilities and locations per unit area)

Habitat Degradation and Density of Energy and Mining will be evaluated under the Disturbance Cap and Density Cap respectively and are further described in this appendix. The three measures, in conjunction with other information, will be considered during the National Environmental Policy Act of 1969 (NEPA) process for projects authorized or undertaken by the Bureau of Land Management (BLM) and Forest Service.

DISTURBANCE CAP

This land use plan has incorporated a 3 percent disturbance cap, applicable only within GRSG priority habitat management areas (PHMA). The disturbance cap applies to PHMA within 1) a biologically significant unit (BSU), and 2) the project authorization scale.

For the Utah Sub-region, a BSU is defined as the total PHMA acreage associated with a GRSG population area. At the BSU scale, the total PHMA acreage in a population area is the denominator portion of the percentage calculation.

At the project scale, the denominator is determined by identifying PHMA that is nearby or affected by the proposed project that is also located in PHMA. Additional detail on identifying the project level boundaries is identified below.

The denominator in the disturbance calculation formula consists of all acres of lands classified as PHMA within the analysis area (BSU or project scale). Areas that are not GRSG seasonal habitats, or are not currently supporting sagebrush cover (e.g., due to wildfire), are not excluded from the acres of PHMA in the denominator of the formula. Information regarding GRSG seasonal habitats, sagebrush availability, and areas with the potential to support GRSG populations will be considered along with other local conditions that may affect GRSG during the analysis of the proposed project area.

The numerator portion of the percentage calculation is limited to specific activities associated with specific GRSG threats. At both the BSU and project scale, this includes the 12 items identified in the “Habitat Degradation” column of **Table E.1**, Relationship between the 18 Threats and the Three Habitat Disturbance Measures for Monitoring and Disturbance Calculations. At the project scale, seven additional site scale features are included in the cap, identified and defined in **Table E.2**, Seven Site Scale Features Considered Threats to GRSG Included in the Disturbance Calculation for Project Authorizations. No other activities, actions, or threats are included in the numerator when calculating the cap.

At both the BSU and project scale, the best available information should be used to map existing disturbance. At the BSU scale, the west-wide habitat degradation (disturbance) data layers and associated areas of direct influence identified in **Table E.3**, Anthropogenic Disturbance Types for Disturbance Calculations, will be used, at a minimum, to calculate the amount of disturbance and to determine if the disturbance cap has been exceeded as the land use plans are being implemented. Locally collected disturbance data will be used to determine if the disturbance cap has been exceeded for project authorizations, and, as available, may also be used to calculate the amount of disturbance in the BSUs. Locally collected disturbance data should identify the actual areas of disturbance to the extent possible, and are not required to rely on the “Direct Area of Influence” estimates in **Table E.3**.

Although locatable mine sites are included in the degradation calculation, mining activities under the Mining Law of 1872, as amended, may not be subject to the 3 percent disturbance cap. Details about locatable mining activities will be fully disclosed and analyzed in the NEPA process to assess impacts to GRSG and their habitat as well as to goals and objectives, and other agency programs and activities.

DISTURBANCE FORMULAS

Formulas for calculations of the amount of disturbance in PHMA in a BSU and in a proposed project area are as follows:

- For the BSUs:

$$\% \text{ Degradation Disturbance} = (\text{combined acres of the 12 degradation threats}^1) \div (\text{acres of all lands within PHMA in a BSU}) \times 100.$$

¹ See **Table E.1**.

- For the Project Analysis Area:

$\% \text{ Degradation Disturbance} = (\text{combined acres of the 12 degradation threats}^2 \text{ plus the 7 site scale threats and acres of habitat loss}^3) \div (\text{acres of all lands within PHMA in the project analysis area}) \times 100.$

PROJECT ANALYSIS AREA METHOD FOR PERMITTING SURFACE DISTURBANCE ACTIVITIES

1. Identify the portions of the proposed area of physical disturbance within PHMA. In other words, in GIS, “clip” the proposed project to PHMA.
2. Determine potentially affected occupied leks by placing a 4 mile boundary around the proposed area of physical disturbance related to the project. All occupied leks located within the 4 mile project boundary and within PHMA will be considered affected by the project.
3. Next, place a 4 mile boundary around each of the affected occupied leks.
4. PHMA within the 4 mile project boundary as well as the 4 mile lek boundary creates the project analysis area for each individual project. If there are no occupied leks within the 4 mile project boundary, the project analysis area will be that portion of the 4 mile project boundary within PHMA.
5. Map disturbances or use locally available data. Use of NAIP imagery is recommended.
6. Calculate percent existing disturbance using the formula above. If existing disturbance is less than 3 percent, proceed to next step. If existing disturbance is greater than 3 percent, defer the project.
7. Add proposed project disturbance footprint area and recalculate the percent disturbance. If disturbance is less than 3 percent, proceed to next step. If disturbance is greater than 3 percent, defer project.
8. For disturbance from proposed energy or mining facilities, calculate the disturbance density (listed below under *Density Cap*). If the disturbance density is less than 1 facility per 640 acres, averaged across the project analysis area, proceed to the NEPA analysis incorporating mitigation measures into an alternative. If the disturbance density is greater than 1 facility per 640 acres, averaged across the project analysis area, either defer the proposed energy or mining project or co-locate it into existing disturbed area.
9. If a project that would exceed the degradation cap or density cap (for energy or mining facilities) cannot be deferred due to valid existing rights or other existing laws and regulations, fully disclose the local and regional impacts of the proposed action in the associated NEPA.

² See **Table E.1.**

³ See **Table E.2.**

TRAVEL AND TRANSPORTATION FEATURES IN THE DISTURBANCE CAP

When locally collecting disturbance inventories, travel and transportation features would be included or not included as disturbance based on the characteristics of the feature.

The following would count as disturbance (see **Attachment I** for definitions):

- Linear transportation features identified as roads that have a maintenance intensity of 3 or 5
- Linear transportation features identified as primitive roads, temporary routes, or administrative routes that have a functional classification and a maintenance intensity of level 3 or 5

The following items would not count as disturbance:

- Linear transportation features identified as trails.
- Linear transportation features identified as primitive roads, temporary routes, or administrative routes that have a maintenance intensity of either level 0 or 1.
- Linear transportation features identified as primitive routes.
- Linear disturbances.

DENSITY CAP

This land use plan has also incorporated a cap on the density of energy and mining facilities at an average of 1 facility per 640 acres in PHMA in a project authorization area. If the disturbance density from energy or mining facilities in PHMA in a proposed project area is on average less than 1 facility per 640 acres, the analysis will proceed through the NEPA process incorporating mitigation measures into an alternative. If the disturbance density from energy or mining facilities is greater than an average of 1 facility per 640 acres, the proposed project will either be deferred until the density of energy and mining facilities is less than the cap or co-located it into existing disturbed area (subject to applicable laws and regulations, such as the Mining Law of 1872, as amended, valid existing rights, etc.). Facilities affected by the density calculation (**Table E.3**) are:

- Energy (oil and gas wells and development facilities)
- Energy (coal mines)
- Energy (wind towers)
- Energy (solar fields)
- Energy (geothermal)
- Mining (active locatable, leasable, and saleable developments)

Table E.1
Relationship Between the 18 Threats and the Three Habitat Disturbance Measures for
Monitoring and Disturbance Calculations

USFWS Listing Decision Threat	Sagebrush Availability	Habitat Degradation	Energy and Mining Density
Agriculture	X		
Urbanization	X		
Wildfire	X		
Conifer encroachment	X		
Treatments	X		
Invasive Species	X		
Energy (oil and gas wells and development facilities)		X	X
Energy (coal mines)		X	X
Energy (wind towers)		X	X
Energy (solar fields)		X	X
Energy (geothermal)		X	X
Mining (active locatable, leasable, and saleable developments)		X	X
Infrastructure (roads)		X	
Infrastructure (railroads)		X	
Infrastructure (power lines)		X	
Infrastructure (communication towers)		X	
Infrastructure (other vertical structures)		X	
Other developed rights-of-way		X	

Table E.2
The Seven Site Scale Features Considered Threats to Sage-Grouse Included in the
Disturbance Calculation for Project Authorizations

-
1. Coalbed Methane Ponds
 2. Meteorological Towers
 3. Nuclear Energy Facilities
 4. Airport Facilities and Infrastructure
 5. Military Range Facilities & Infrastructure
 6. Hydroelectric Plants
 7. Recreation Areas Facilities and Infrastructure
-

Definitions:

1. **Coalbed Methane and other Energy-related Retention Ponds** – The footprint boundary will follow the fenceline and includes the area within the fenceline surrounding the impoundment. If the pond is not fenced, the impoundment itself is the footprint. Other infrastructure associated with the containment ponds (roads, well pads, etc.) will be captured in other disturbance categories.
 2. **Meteorological Towers** – This feature includes long-term weather monitoring and temporary meteorological towers associated with short-term wind testing. The footprint boundary includes the area underneath the guy wires.
 3. **Nuclear Energy Facilities** – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.
 4. **Airport Facilities and Infrastructure (public and private)** – The footprint boundary will follow the boundary of the airport or heliport and includes mowed areas, parking lots, hangers, taxiways, driveways, terminals, maintenance facilities, beacons and related features. Indicators of the boundary, such as distinct land cover changes, fences and perimeter roads, will be used to encompass the entire airport or heliport.
 5. **Military Range Facilities & Infrastructure** – The footprint boundary will follow the outer edge of the disturbed areas around buildings and includes undisturbed areas within the facility's perimeter.
 6. **Hydroelectric Plants** – The footprint boundary includes visible facilities (fence, road, etc.) and undisturbed areas within the facility's perimeter.
 7. **Recreation Areas & Facilities** – This feature includes all sites/facilities larger than 0.25 acres in size. The footprint boundary will include any undisturbed areas within the site/facility.
-

Table E.3
Anthropogenic Disturbance Types for Disturbance Calculations
Data Sources are Described for the West-Wide Habitat Degradation Estimates

Degradation Type	Subcategory	Data Source	Direct Area of Influence	Area Source
Energy (oil & gas)	Wells	IHS; BLM (AFMSS)	5.0ac (2.0ha)	BLM WO-300
	Power Plants	Platts (power plants)	5.0ac (2.0ha)	BLM WO-300
Energy (coal)	Mines	BLM; USFS; Office of Surface Mining Reclamation and Enforcement; USGS Mineral Resources Data System	Polygon area (digitized)	Esri/Google Imagery
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Energy (wind)	Wind Turbines	Federal Aviation Administration	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	3.0ac (1.2ha)	BLM WO-300
Energy (solar)	Fields/Power Plants	Platts (power plants)	7.3ac (3.0ha)/MW	NREL
Energy (geothermal)	Wells	IHS	3.0ac (1.2ha)	BLM WO-300
	Power Plants	Platts (power plants)	Polygon area (digitized)	Esri Imagery
Mining	Locatable Developments	InfoMine	Polygon area (digitized)	Esri Imagery
Infrastructure (roads)	Surface Streets (Minor Roads)	Esri StreetMap Premium	40.7ft (12.4m)	USGS
	Major Roads	Esri StreetMap Premium	84.0ft (25.6m)	USGS
	Interstate Highways	Esri StreetMap Premium	240.2ft (73.2m)	USGS
Infrastructure (railroads)	Active Lines	Federal Railroad Administration	30.8ft (9.4m)	USGS
Infrastructure (power lines)	1-199kV Lines	Platts (transmission lines)	100ft (30.5m)	BLM WO-300
	200-399 kV Lines	Platts (transmission lines)	150ft (45.7m)	BLM WO-300
	400-699kV Lines	Platts (transmission lines)	200ft (61.0m)	BLM WO-300
	700+kV Lines	Platts (transmission lines)	250ft (76.2m)	BLM WO-300
Infrastructure (communication)	Towers	Federal Communications Commission	2.5ac (1.0ha)	BLM WO-300

Note: Data sources are described for the west-wide habitat degradation estimates.

ATTACHMENT I: TRAVEL AND TRANSPORTATION MANAGEMENT DEFINITIONS FOR USE IN ANTHROPOGENIC DISTURBANCE CALCULATION

Roads are linear routes managed for use by low clearance vehicles having four or more wheels, and are maintained for regular and continuous use.

Primitive Roads are linear routes managed for use by four-wheel drive or high-clearance vehicles. They do not normally meet any design standards.

Trails are linear routes managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Linear Disturbances are human-made linear features that are not part of the designated transportation network are identified as “Transportation Linear Disturbances.” These may include engineered (planned) as well as unplanned single and two-track linear features that are not part of the BLM’s transportation system.

Primitive Routes are any transportation linear feature located within a wilderness study area or lands with wilderness characteristics identified for protection by a land use plan and not meeting the wilderness inventory road definition.

Temporary Routes are short-term overland roads, primitive roads or trails which are authorized or acquired for the development, construction or staging of a project or event that has a finite lifespan. Temporary routes are not intended to be part of the permanent or designated transportation network and must be reclaimed when their intended purpose(s) has been fulfilled. Temporary routes should be constructed to minimum standards necessary to accommodate the intended use; the intent is that the project proponent (or their representative) will reclaim the route once the original project purpose or need has been completed. Temporary routes are considered emergency, single use or permitted activity access. Unless they are specifically intended to accommodate public use, they should not be made available for that use. A temporary route will be authorized or acquired for the specific time period and duration specified in the written authorization (e.g., permit, ROW, lease, or contract) and will be scheduled and budgeted for reclamation to prevent further vehicle use and soil erosion from occurring by providing adequate drainage and re-vegetation.

Administrative Routes are those that are limited to authorized users (typically motorized access). These are existing routes that lead to developments that have an administrative purpose, where the agency or permitted user must have access for regular maintenance or operation. These authorized developments could include such items as power lines, cabins, weather stations, communication sites, spring.

Maintenance Intensities

Level 0

Maintenance Description

Existing routes that will no longer be maintained and no longer be declared a route. Routes identified as Level 0 are identified for removal from the Transportation System entirely.

Maintenance Objectives

- No planned annual maintenance.
- Meet identified environmental needs.
- No preventative maintenance or planned annual maintenance activities.

Level 1

Maintenance Description

Routes where minimum (low intensity) maintenance is required to protect adjacent lands and resource values. These roads may be impassable for extended periods of time.

Maintenance Objectives

- Low (Minimal) maintenance intensity.
- Emphasis is given to maintaining drainage and runoff patterns as needed to protect adjacent lands. Grading, brushing, or slide removal is not performed unless route bed drainage is being adversely affected, causing erosion.
- Meet identified resource management objectives.
- Perform maintenance as necessary to protect adjacent lands and resource values.
- No preventative maintenance.
- Planned maintenance activities limited to environmental and resource protection.
- Route surface and other physical features are not maintained for regular traffic.

Level 3

Maintenance Description

Routes requiring moderate maintenance due to low volume use (for example, seasonally or year-round for commercial, recreational, or administrative access). Maintenance Intensities may not provide year-round access but are intended to generally provide resources appropriate to keep the route in use for the majority of the year.

Maintenance Objectives

- Medium (Moderate) maintenance intensity.
- Drainage structures will be maintained as needed. Surface maintenance will be conducted to provide a reasonable level of riding comfort at prudent speeds for the route conditions and intended use. Brushing is conducted as needed to improve

sight distance when appropriate for management uses. Landslides adversely affecting drainage receive high priority for removal; otherwise, they will be removed on a scheduled basis.

- Meet identified environmental needs.
- Generally maintained for year-round traffic.
- Perform annual maintenance necessary to protect adjacent lands and resource values.
- Perform preventative maintenance as required to generally keep the route in acceptable condition.
- Planned maintenance activities should include environmental and resource protection efforts, annual route surface.
- Route surface and other physical features are maintained for regular traffic.

Level 5

Maintenance Description

Route for high (maximum) maintenance due to year-round needs, high volume of traffic, or significant use. Also may include route identified through management objectives as requiring high intensities of maintenance or to be maintained open on a year-round basis.

Maintenance Objectives

- High (Maximum) maintenance intensity.
- The entire route will be maintained at least annually. Problems will be repaired as discovered. These routes may be closed or have limited access due to weather conditions but are generally intended for year-round use.
- Meet identified environmental needs.
- Generally maintained for year-round traffic.
- Perform annual maintenance necessary to protect adjacent lands and resource values.
- Perform preventative maintenance as required to generally keep the route in acceptable condition.
- Planned maintenance activities should include environmental and resource protection efforts, annual route surface.
- Route surface and other physical features are maintained for regular traffic.

Appendix F

Applying Lek Buffer Distances

APPENDIX F

APPLYING LEK BUFFER DISTANCES

BUFFER-DISTANCES AND EVALUATION OF IMPACTS TO LEKS

Evaluate impacts to leks during the National Environmental Policy Act (NEPA) analysis process. In addition to any other relevant information determined to be appropriate (e.g. State wildlife agency plans), the BLM will assess and address impacts from the following activities using the lek buffer-distances as identified in the US Geological Survey (USGS) Report *Conservation Buffer-distance Estimates for Greater Sage-Grouse – A Review* ([Open File Report 2014-1239](#)). The BLM will apply the lek buffer-distances specified as the lower end of the interpreted range in the report unless *justifiable departures* are determined to be appropriate (see below). The lower end of the interpreted range of the lek buffer-distances is as follows:

- linear features (roads) within 3.1 miles of leks
- infrastructure related to energy development within 3.1 miles of leks
- tall structures (e.g., communication or transmission towers, transmission lines) within 2 miles of leks
- low structures (e.g., fences, rangeland structures) within 1.2 miles of leks
- surface disturbance (continuing human activities that alter or remove the natural vegetation) within 3.1 miles of leks
- noise and related disruptive activities including those that do not result in habitat loss (e.g., motorized recreational events) at least 0.25 miles from leks

Justifiable departures to decrease or increase from these distances, based on local data, best available science, landscape features, and other existing protections (e.g., land use allocations, state regulations) may be appropriate for determining activity impacts. The USGS report recognized “that because of variation in populations, habitats, development patterns, social context, and other factors, for a particular disturbance type, there is no single distance that is an appropriate buffer for all populations and habitats across the sage-grouse range”. The USGS report also states that “various protection measures have been developed and implemented... [which have] the ability (alone or in concert with others) to protect important habitats, sustain

populations, and support multiple-use demands for public lands”. All variations in lek buffer-distances will require appropriate analysis and disclosure as part of activity authorization. In determining lek locations, the BLM will use the most recent active or occupied lek data available from the state wildlife agency.

ACTIONS IN GHMA

The BLM will apply the lek buffer-distances identified above as required conservation measures to fully address the impacts to leks as identified in the NEPA analysis. Impacts should first be avoided by locating the action outside of the applicable lek buffer distance(s) identified above.

The BLM may approve actions in GHMA that are within the applicable lek buffer distance identified above only if:

- Impacts should first be avoided by locating the action outside of the applicable lek buffer-distance(s) identified above.
- If it is not possible to relocate the project outside of the applicable lek buffer-distance(s) identified above, the BLM may approve the project only if:
 - Based on best available science, landscape features, and other existing protections, (e.g., land use allocations, state regulations), the BLM determines that a lek buffer-distance other than the applicable distance identified above offers the same or a greater level of protection to GRSG and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area; or
 - The BLM determines that impacts to GRSG and its habitat are minimized such that the project will cause minor or no new disturbance (ex. co-location with existing authorizations); and
 - Any residual impacts within the lek buffer-distances are addressed through compensatory mitigation measures sufficient to ensure a net conservation gain, as outlined in the mitigation strategy (**Appendix D**, Mitigation Strategy Utah Greater-Sage-Grouse LUPA).

ACTIONS IN PHMA

The BLM will apply the lek buffer-distances identified above as mandatory conservation measures to fully address the impacts to leks as identified in the NEPA analysis. Impacts should be avoided by locating the action outside of the applicable lek buffer-distance(s) identified above.

The BLM may approve actions in PHMA that are within the applicable lek buffer-distance identified above only if:

- The BLM, with input from the state fish and wildlife agency, determines, based on best available science, landscape features, and other existing protections, that a buffer-distance other than the distance identified above offers the same or greater level of protection to GRSG and its habitat, including conservation of seasonal habitat outside of the analyzed buffer area.

- Range improvements which do not impact GRSG or range improvements which provide a conservation benefit to GRSG such as fences for protecting important seasonal habitats, meet the lek buffer requirement.

The BLM will explain its justification for determining the approved buffer-distances meet these conditions in its project decision.

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Appendix G

Required Design Features

APPENDIX G

REQUIRED DESIGN FEATURES

The following conservation measures have typically been referred to as best management practices (BMPs) or recommended management practices. These conservation measures are treated in the land use plan amendment as required design features (RDFs) to ensure regulatory certainty and the conservation of Greater Sage-Grouse (GRSG).

Required design features are required for certain activities in all GRSG habitat. Required design features establish the minimum specifications for certain activities to help mitigate adverse impacts. However, the applicability and overall effectiveness of each RDF cannot be fully assessed until the project level when the project location and design are known. Because of site-specific circumstances, some RDFs may not apply to some projects (e.g., a resource is not present on a given site) and/or may require slight variations (e.g., a larger or smaller protective area). All variations in RDFs would require that at least one of the following be demonstrated in the NEPA analysis associated with the project/activity:

- A specific RDF is documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;
- An alternative RDF is determined to provide equal or better protection for GRSG or its habitat;
- A specific RDF will provide no additional protection to GRSG or its habitat.

The RDFs are required for the activities associated with each heading below. In addition, all project proponents are encouraged to include any appropriate conservation measure in their proposals. The US Department of the Interior, Bureau of Land Management (BLM) will require application of all appropriate conservation measures, warranted by site-specific analysis, in order to avoid, minimize, or compensate for impacts. Conservation measures not included in project proposals and determined appropriate from the site-specific analysis will be required as conditions of approval, stipulations, terms and conditions, etcetera. Additional conditions of

approval developed through consultation with other federal, state, and local regulatory and resource agencies may be applied when supported by site-specific analysis.

REQUIRED DESIGN FEATURES FOR FIRE AND FUELS

Fire Operations

- Compile District level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.
- Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
- Assign a resource advisor who has GRSG expertise or access to GRSG expertise to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:
 - instructing resource advisors during preseason trainings
 - qualification as resource advisors
 - coordination with resource advisors during fire incidents
 - contributing to incident planning with information such as habitat features or other key data useful in fire decision making
- On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.
- During periods of multiple fires, ensure line officers are involved in setting priorities.
- To the extent possible, locate wildfire suppression facilities (e.g., base camps, spike camps, drop points, staging areas, and heli-bases) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails, or other areas where there is existing disturbance or minimal sagebrush cover.
- Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles prior to deploying in or near GRSG habitat areas to minimize noxious weed spread.
- Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.
- Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.
- As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

- Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

Fuels Management

- Where applicable, design fuels treatment objectives to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns that most benefit GRSG habitat.
- Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas utilized locally.
- Use burning prescriptions which minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).
- Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.
- Power-wash all vehicles and equipment involved in fuels management activities, prior to entering the area, to minimize the introduction of undesirable and/or invasive plant species.
- Design vegetation treatments in areas of high fire frequency that facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.
- As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.
- Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.
- Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., greenstrips) paralleling road rights-of-way.
- Strategically place and maintain pre-treated strips/areas (e.g., mowing and herbicide application) to aid in controlling wildfire should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

REQUIRED DESIGN FEATURES FOR SOLID MINERALS (INCLUDING LOCATABLE MINERALS)

The following measures would be applied as RDFs for all solid minerals. They would also apply to locatable minerals consistent with applicable law.

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

- Locate roads to avoid important areas and habitats (important habitats include seasonal habitats within PHMA).
- Coordinate road construction and use among right-of-way or special use authorization holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads or design roads to be driven at slower speeds to reduce vehicle/wildlife collisions.
- Do not issue rights-of-way or special use authorizations to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing and gates).
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances associated with operations and facilities as closely as possible.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear rights-of-way or special use authorizations to reduce disturbance to sagebrush habitats.
- Bury power lines.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003; Bergquist et al. 2007).
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). See Required Design Features for Preventing West Nile Virus.
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
 - Overbuild size of ponds for muddy and non-vegetated shorelines.

- Build steep shorelines to decrease vegetation and increase wave actions.
 - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
 - Construct dams or impoundments that restrict down slope seepage or overflow.
 - Line the channel where discharge water flows into the pond with crushed rock.
 - Construct spillway with steep sides and line it with crushed rock.
 - Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
- Require sage-grouse-safe fences around sumps.
 - Clean up refuse (Bui et al. 2010).
 - Locate worker camps outside of PHMA.

Reclamation

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites.
- Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve sage-grouse habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community
- Irrigate interim reclamation as necessary during dry periods. Utilize mulching techniques to expedite reclamation.

REQUIRED DESIGN FEATURES FOR FLUID MINERALS**Roads****PHMA**

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue rights-of-way or special use authorizations to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among right-of-way or special use authorization holders.

- Construct road crossings at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and rehabilitate duplicate roads.
- Locate roads to avoid important areas and habitats (important habitats include seasonal habitats (i.e., winter, nesting, breeding, and brooding habitats) within PHMA).
- Restrict vehicle traffic to only authorized users on newly constructed routes using signage, gates, etc.

GHMA

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue rights-of-way or special use authorizations to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among right-of-way or special use authorization holders.
- Construct road crossings at right angles to ephemeral drainages and stream crossings.
- Use dust abatement practices on roads and pads.
- Close and rehabilitate duplicate roads.

Operations**PHMA**

- Cluster disturbances, operations (e.g., fracture stimulation and liquids gathering), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Develop a plan to reduce vehicular traffic frequency of vehicle use through establishing trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition), unless required for safety purposes.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (with fine mesh netting or other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species by washing vehicles and equipment (Evangelista et al. 2011).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).
- Place infrastructure in already disturbed locations where the habitat has not been fully restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of PHMA. Have no tanks at well locations within PHMA to minimize truck traffic and perching and nesting sites for ravens and raptors. Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Site and/or minimize linear rights-of-way or special use authorizations to reduce disturbance to sagebrush habitats.
- Bury distribution power lines.
- Collocate powerlines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).
- Design or site permanent structures which create movement (e.g. pump jack) to minimize impacts on Greater Sage-Grouse.
- Use only closed-loop systems for drilling operations and no reserve pits.
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
 - Overbuild size of ponds for muddy and non-vegetated shorelines.
 - Build steep shorelines to decrease vegetation and increase wave actions.
 - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
 - Construct dams or impoundments that restrict down slope seepage or overflow.
 - Line the channel where discharge water flows into the pond with crushed rock.
 - Construct spillway with steep sides and line it with crushed rock.
 - Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

- Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Locate new compressor stations outside PHMA and design them to reduce noise that may be directed towards PHMA.
- Locate worker camps outside of PHMA.

GHMA

- Cluster disturbances, operations (e.g., fracturing stimulation and liquids gathering), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Develop a plan to reduce vehicular traffic frequency of vehicle use through establishing trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition), unless required for safety purposes.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (with fine mesh netting or other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.
- Control the spread and effects of non-native plant species by washing vehicles and equipment (Evangelista et al. 2011).
- Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Dougherty 2007).

Reclamation**PHMA**

- Include objectives for ensuring habitat restoration meets GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to improve or restore GRSG habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

GHMA

- Include objectives for ensuring habitat restoration meets GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to improve or restore GRSG habitat needs.

REQUIRED DESIGN FEATURES FOR PREVENTING WEST NILE VIRUS

- Increase the size of fresh-water ponds to accommodate a greater volume of water than is discharged. This will result in un-vegetated and muddy shorelines that breeding *Cx. tarsalis* avoid (De Szalay and Resh 2000). This modification may reduce *Cx. tarsalis* habitat but could create larval habitat for *Culicoides sonorensis*, a vector of blue tongue disease, and should be used sparingly (Schmidtmann et al. 2000). Steep shorelines should be used in combination with this technique whenever possible (Knight et al. 2003).
- Build steep shorelines to reduce shallow water (more than 60 centimeters) and aquatic vegetation around the perimeter of impoundments (Knight et al. 2003). Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito species like *Cx. tarsalis*, which prefer newly flooded sites with high primary productivity (Knight et al. 2003).
- Maintain the water level below that of rooted vegetation for a muddy shoreline that is unfavorable habitat for mosquito larvae. Rooted vegetation includes both aquatic and upland vegetative types. Avoid flooding terrestrial vegetation in flat terrain or low lying areas. Aquatic habitats with a vegetated inflow and outflow separated by open water produce 5- to 10-fold fewer *Culex* mosquitoes than completely vegetated wetlands (Walton and Workman 1998). Wetlands with open water also had significantly fewer stage III and IV instars which may be attributed to increased predator abundances in open water habitats (Walton and Workman 1998).
- Construct dams or impoundments that restrict down slope seepage or overflow by digging ponds in flat areas rather than damming natural draws for effluent water storage, or lining constructed ponds in areas where seepage is anticipated (Knight et al. 2003).
- Line the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water, thus precluding shallow surface inflow and accumulation of sediment that promotes aquatic vegetation.
- Line the overflow spillway with crushed rock, and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation.
- Fence pond site to restrict access by livestock and other wild ungulates that trample and disturb shorelines, enrich sediments with manure and create hoof print pockets of water that are attractive to breeding mosquitoes.

REQUIRED DESIGN FEATURES FOR LANDS AND REALTY

- Where technically and financially feasible, bury distribution powerlines and communication lines within existing disturbance.
- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Place infrastructure in already disturbed locations where the habitat has not been fully restored.
- Cluster disturbances, operations, and facilities.
- Micro-site linear facilities to reduce impacts to GRSG habitats.
- Locate staging areas outside GRSG habitat to the extent possible.
- Coordinate road construction and use among ROW holders.
- Restrict vehicle traffic to only authorized users on newly constructed routes using signage, gates, etc.
- Construct road crossings at right angles to ephemeral drainages and stream crossings.
- Consider placing pipelines under or immediately adjacent to a road or adjacent to other pipelines first, before considering co-locating with other ROW.
- Control the spread and effects of non-native plant species.
- New ROW structures will be constructed with perch deterrents or other anti-perching devices, where needed.

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Appendix H

Stipulations Associated with Fluid Mineral Leasing

APPENDIX H

STIPULATIONS ASSOCIATED WITH FLUID MINERAL LEASING

This appendix lists by alternative surface stipulations for new fluid minerals leases referred to throughout this Proposed Land Use Plan Amendment (LUPA) and Final Environmental Impact Statement (EIS).

Surface disturbing activities are those that normally result in more than negligible disturbance to public lands. These activities normally involve disturbance to soils and vegetation to the extent that reclamation is required. They include, but are not limited to, the use of mechanized earth-moving equipment; truck-mounted drilling equipment; geophysical exploration; off-road vehicle travel in areas designated as limited or closed to off-highway vehicle use; placement of surface facilities such as utilities, pipelines, structures, and oil and gas wells; new road construction; and use of pyrotechnics, explosives, and hazardous chemicals. Surface disturbing activities would not include livestock grazing, cross-country hiking, driving on designated routes, and minimum impact filming permits.

DESCRIPTION OF SURFACE STIPULATIONS

Tables H.1 through **H.8** shows the stipulations for Alternatives A, D, and E, and the Proposed Plan, including exceptions, modifications, and waivers by alternative. Three types of surface stipulations could be applied to fluid mineral leases: (1) no surface occupancy (NSO), (2) timing limitations (TL), and (3) controlled surface use (CSU). There are no stipulations included for Alternatives B and C because they are closed to fluid mineral leasing. All stipulations for other resources, besides Greater Sage-Grouse (GRSG), included in the existing land use plans would still be applicable.

Areas identified as NSO would be closed to surface disturbing activities.

Areas identified as TL would be closed to surface disturbing activities during identified time frames. TL areas would be open to operational and maintenance activities, including associated vehicle travel, during the closed period unless otherwise specified in the stipulation.

Areas identified as CSU would require proposals to be authorized only according to the controls or constraints specified. The controls would be applicable to all surface disturbing activities.

RELIEF FROM STIPULATIONS

With regard to fluid minerals, surface stipulations could be excepted, modified, or waived by the Authorized Officer, but only as specifically identified below. An exception exempts the holder of the land use authorization document from the stipulation on a one-time (or case-by-case) basis. A modification changes the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently removes the stipulation from the lease. The environmental analysis document prepared for site-specific proposals such as fluid minerals development (i.e., master development plans applications for permit to drill or sundry notices) also would need to address proposals to exempt, modify, or waive a surface stipulation.

On National Forest System lands, this process would follow regulatory requirements at 36 CFR 228.104. This process includes ensuring compliance with NEPA, and assessing if the action would be consistent with applicable federal laws, the current land and resource management plan, and meet the management objectives.

On BLM-administered lands, to exempt, modify, or waive a stipulation, the environmental analysis document would have to show that (1) the circumstances or relative resource values in the area had changed following issuance of the lease, (2) less restrictive requirements could be developed to protect the resource of concern, and (3) operations could be conducted without causing unacceptable impacts.

With respect to granting relief to stipulations on other types of authorizations, such as solid mineral leases, land use authorizations, etc. any changes to the contractual nature of these instruments would require environmental review and coordination with the Lessee, permit or authorization holder when specific surface disturbing activities are proposed via an operation plan, permitting action or similar instrument.

STANDARD TERMS AND CONDITIONS

All surface disturbing activities are subject to standard terms and conditions. These include the stipulations that are required for proposed actions in order to comply with the Threatened and Endangered Species Act. Standard terms and conditions for fluid minerals leasing provide for relocation of proposed operations up to 200 meters and for prohibiting surface disturbing operations for a period not to exceed 60 days. The stipulations addressed in **Tables H.1** through **H.8** that are not within the parameters of 200 meters and 60 days are considered open to fluid minerals leasing subject to standard terms and conditions.

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface occupancy within 0.5 mile of GRSG leks. Price Field Office	<p>Exception: The authorized officer may grant an exception if an environmental analysis demonstrates that the action will not impair the function or utility of the site for current or subsequent reproductive display, including daytime loafing/staging activities, and/or will not result in development of a permanent aboveground structure within 0.5 mile of a lek.</p> <p>Modification: The authorized officer may modify the NSO area in extent if an environmental analysis finds that a portion of the NSO area is nonessential to site utility or function, or if further analysis shows that the size or location of the lek has changed, or that the proposed action could be conditioned to not impair the function or utility of the site for current or subsequent reproductive display including daytime loafing/staging activities.</p> <p>Waiver: A waiver may be granted if there are no active lek sites and it is determined the sites have been completely abandoned or destroyed or occur outside the initial identified area, as determined by BLM.</p>
No surface occupancy for oil and gas leasing within 0.5 mile of GRSG leks. Richfield Field Office	<p>Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p>
No surface-disturbing activities within 1/4 mile of GRSG leks year round. Vernal Field Office	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
No surface occupancy within 0.5 mile of a GRSG lek site. Kanab Field Office	<p>Exception: An exception may be granted by the Authorized Officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p>Modification: The Authorized Officer may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if there are no active lek site(s)</p>

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.
<p>No well sites or production facilities such as tank batteries and compressor stations may be constructed on these lands. Construction of roads, pipelines and other similar facilities must comply with direction in the 2003 Uinta National Forest Land and Resource Management Plan², and involve consultation with the USFWS and coordination with the UDWR.</p> <p>Uinta National Forest</p>	<p>For the Purpose Of: Facilitating recovery of the species, and protecting GRSG and key habitat for this species (brood-rearing and winter habitat as identified by the UDWR and as portrayed in the 2003 Uinta National Forest Land and Resource Management Plan)</p> <p>Exception: None</p> <p>Modification: A modification may be granted if the authorizing official determines through consultation with the USFWS and coordination with the UDWR that new habitat studies demonstrate a portion of the lease area affected by this stipulation no longer contains brood-rearing or winter habitat.</p> <p>Waiver: A waiver may be granted if the authorizing official determines through consultation with the USFWS and coordination with the UDWR that new habitat studies demonstrate the entire lease area affected by this stipulation no longer contains brood-rearing or winter habitat</p>
<p>No surface occupancy or use is allowed within 1 mile of GRSG leks (all habitats), and between 1 and 2 miles of GRSG leks within sagebrush habitat only.</p> <p>Dixie National Forest</p>	<p>For the Purpose Of: Protecting breeding and brood rearing GRSG from predation, displacement, habitat fragmentation, and disturbance. Preventing any loss of viability to GRSG populations.</p> <p>Exception: Seismic activities, including blasting, would be limited during the lekking period: March 1– May 15.</p> <p>A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).</p> <p>Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).</p>
<p>In order to protect GRSG strutting grounds, exploration, drilling, and other development activity will not be allowed during the period from March 1 through May 15. This limitation does not apply to maintenance and operation of producing wells.</p> <p>Cedar City Field Office</p>	<p>Exception: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM.</p> <p>Modification: None</p> <p>Waiver: None</p>

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
In order to protect GRSG strutting grounds, exploration, drilling, and other development activity will not be allowed during the period from April 1 through June 15. This limitation does not apply to maintenance and operation of producing wells. Salt Lake Field Office	<p>Exception: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM.</p> <p>Modification: None</p> <p>Waiver: None</p>
In order to protect GRSG strutting grounds, exploration, drilling, and other development activity will not be allowed during the period from March 1 through May 15. This limitation does not apply to maintenance and operation of producing wells. Salt Lake Field Office	<p>Exception: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM.</p> <p>Modification: None</p> <p>Waiver: None</p>
In order to protect crucial GRSG breeding complexes, exploration, and drilling and other development activity within 0.5 mile radius of the complexes will be allowed from June 16 to March 14. This limitation does not apply to maintenance and operation of producing wells. Salt Lake Field Office	<p>Exception: Specific exceptions may be granted by the BLM if the proposed activity will not seriously disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife biologist in coordination with the UDWR and, if appropriate, the USFWS. Such a determination may result if the GRSG complex has remained inactive over a period of years and it is determined by the BLM and UDWR that the population no longer used the complex and no longer requires protection from disturbing activities for fluid mineral leasing and exploration.</p> <p>Modification: None</p> <p>Waiver: None</p>
In order to protect important seasonal GRSG breeding areas, exploration, drilling, and other development activity will be allowed during the period from May 1 through March 14. This imitation does not apply to maintenance and operation of producing wells. Cedar City Field Office	<p>Exception: Exceptions to this imitation in any year may be specifically authorized in writing by the authorized officer of the BLM.</p> <p>Modification: None</p> <p>Waiver: None</p>
Within 5 km (3.1 miles) of known active leks use the best available technology such as installation of	For the Purpose Of: Protecting breeding and brood-rearing GRSG from disturbance.

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise. Uinta National Forest	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
No permanent (i.e., lasting more than 1 year) structures or facilities within 4 miles of an active GRSG lek in breeding or brood-rearing habitat. Uinta National Forest	<p>For the Purpose Of: Protecting breeding and brood-rearing GRSG from predation, habitat fragmentation, and disturbance.</p> <p>Exception: An exception may be granted if the authorized officer, in consultation with the USFWS and coordination with the UDWR, determines through analysis that the nature of the actions, as proposed or conditioned, could be fully mitigated. This might occur if topography and/or vegetation is present that would effectively screen the structure or facility from the breeding habitat.</p> <p>Modification: A modification may be granted if the authorizing official determines through consultation with the USFWS and coordination with the UDWR, that new habitat studies demonstrate a portion of the lease area affected by this stipulation no longer contains breeding or brood-rearing habitat.</p> <p>Waiver: A waiver may be granted if the authorizing official determines through consultation with USFWS and coordination with the UDWR, that new habitat studies demonstrate the entire lease area affected by this stipulation no longer contains breeding or brood-rearing habitat.</p>
No surface disturbing or otherwise disruptive activities within 2 miles of a GRSG lek from March 15 to July 15. Price Field Office	<p>Exception: The authorized officer may grant an exception if an environmental analysis demonstrates that the action would not impair the function or utility of the habitat for nesting or early brood-rearing activities.</p> <p>Modification: Season may be adjusted depending on climatic and habitat conditions. Disturbance could occur if the activity were proposed to occur within the buffer, but would occur in non-sagebrush habitat, i.e., the activity could be allowed if it was not in GRSG habitat and did not in some other way disturb nesting or brood-rearing activity.</p> <p>Waiver: This stipulation may be waived if, in cooperation with UDWR, it is determined that the site has been permanently abandoned or unoccupied for a minimum of 5 years.</p>
No surface disturbing or otherwise disruptive activities within 2 miles of a GRSG lek from March 15 to July 15 to protect GRSG breeding and brood-rearing habitat.	<p>Exception: An exception could be granted if surveys determine that the GRSG lek in nesting and brood-rearing habitat is not occupied. An exception may also be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the lek sites are not active.</p>

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
Richfield Field Office	<p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if it is determined the habitat no longer exists or has been destroyed.</p>
No surface-disturbing activities within 2 miles of active GRSG leks in mapped brood rearing and nesting habitat from March 1 - June 15.	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
Vernal Field Office	
Within 1/2 mile of known active leks use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise.	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
Vernal Field Office	
No permanent facilities or structures would be allowed within 2 miles GRSG leks when possible.	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
Vernal Field Office	
In order to protect important GRSG breeding and nesting habitat, exploration, drilling, and other development activity within 2 miles of any strutting ground will be allowed only during the period from June 16 to February 28. This limitation does not apply to maintenance and operation of producing wells.	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
Salt Lake Field Office	
Protecting GRSG during the critical breeding and brood-rearing season by precluding activities which could cause increased stress, displacement, and or breeding failures during the critical time period (March 1st to	<p>For the Purpose Of: Protecting GRSG during the critical breeding and brood-rearing season.</p> <p>Exception: An exception may be granted if the proposed activity is at least 4 miles from any lek, there are no practical alternatives, and the authorized officer determines through analysis and in consultation with the USFWS and coordination with the UDWR</p>

Table H.1
Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>June 1st in the Vernon Management Area; March 1st to June 15th in the Strawberry Reservoir and Currant Creek Management Areas).</p> <p>Uinta National Forest</p>	<p>that the nature of the actions, as proposed or conditioned, could be fully mitigated.</p> <p>Modification: A modification may be granted if the authorized officer determines thru new habitat studies, coordinated with the USFWS and UDWR, that a portion of the leasehold affected by this stipulation does not contain GRSG breeding or brood-rearing habitat.</p> <p>Waiver: A waiver may be granted if the authorized officer determines thru new habitat studies, coordinated with the USFWS and UDWR, that the entire lease area affected by this stipulation does not contain any GRSG breeding or brood-rearing habitat.</p>
<p>Surface occupancy or use is subject to the following special operating constraints:</p> <p>No activities would be allowed from May 1 to July 15. Outside these dates, surface disturbance for oil and gas operations is limited to no more than 1 percent of total habitat (1 percent = 130 acres), including the areas of avoidance due to human activity (i.e., roads and well pads) with radius/buffer to be determined by the Dixie National Forest.</p> <p>Reclaimed oil and gas disturbance which has met reclamation requirements is not included in the disturbed/avoidance area calculation.</p>	<p>For the Purpose Of: To avoid a substantial loss of GRSG brooding habitat and to ensure brood rearing success and to avoid a loss of viability to GRSG populations on the Dixie National Forest.</p> <p>A request for a waiver, exception, or modification (WEM) to the above lease stipulation may be requested along with the submission of a Surface Use Plan of Operations (36 CFR 228.104).</p> <p>Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).</p>
<p>No surface disturbing or otherwise disruptive activities (e.g., construction and maintenance) nesting and brood-rearing habitat from March 15 to July 15 within 2 miles of a GRSG lek.</p> <p>Kanab Field Office</p>	<p>Exception: An exception could be granted if surveys determine that the GRSG lek in nesting and brood-rearing habitat is not occupied. An exception may also be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the lek sites are not active.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if it is determined the habitat no longer exists or has been destroyed.</p>

Table H.1

Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>No permanent structures or facilities (i.e., lasting more than 1 year) in winter habitat.</p> <p>Uinta National Forest</p>	<p>For the Purpose Of: Protecting wintering GRSG from predation, habitat fragmentation, and disturbance.</p> <p>Exception: An exception may be granted if the authorized officer, in consultation with the USFWS and coordination with the UDWR, determines through analysis that the nature of the actions, as proposed or conditioned, could be fully mitigated.</p> <p>Modification: A modification may be granted if the authorizing official determines through consultation with the USFWS and coordination with the UDWR, that new habitat studies demonstrate a portion of the lease area affected by this stipulation no longer contains winter habitat.</p> <p>Waiver: A waiver may be granted if the authorizing official determines through consultation with the USFWS and coordination with the UDWR, that new habitat studies demonstrate the entire lease area affected by this stipulation no longer contains winter habitat.</p>
<p>Protecting GRSG during the critical winter season by precluding activities which could cause increased stress, displacement, and or breeding failures during the critical time period (November 15th to March 1st in the Vernon Management Area; November 1st to March 15th in the Strawberry Reservoir and Upper Provo Management Areas).</p> <p>Uinta National Forest</p>	<p>For the Purpose Of: Protecting GRSG during the critical winter season.</p> <p>Exception: An exception may be granted if there are no practical alternatives, and the authorized officer determines through analysis and in consultation with the USFWS and coordination with the UDWR that the nature of the actions, as proposed or conditioned, could be fully mitigated.</p> <p>Modification: A modification may be granted if the authorized officer determines thru new habitat studies, coordinated with the USFWS and UDWR, that a portion of the leasehold affected by this stipulation does not contain GRSG winter habitat.</p> <p>Waiver: A waiver may be granted if the authorized officer determines thru new habitat studies, coordinated with the USFWS and UDWR, that the entire lease area affected by this stipulation does not contain any GRSG winter habitat.</p>
<p>No surface disturbing or otherwise disruptive activities in GRSG winter habitat from December 1 to March 14.</p> <p>Kanab Field Office</p>	<p>Exception: An exception could be granted if surveys determine that the GRSG winter habitat is not occupied, and that snow depths in the area allow continued GRSG use. An exception may also be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be avoided, sufficiently minimized, or adequately mitigated.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if it is determined the habitat no longer exists or has been destroyed.</p>

Table H.1

Alternative A Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface disturbing or otherwise disruptive activities within GRSG winter habitat areas seasonally from December 1 to March 14. Price Field Office	<p>Exception: Upon review and monitoring, the Authorized Officer may grant exceptions because of climatic and/or habitat conditions if certain criteria are met and if activities would not cause undue stress to wintering GRSG.</p> <p>Modification: Season may be adjusted depending on climatic and habitat conditions.</p> <p>Waiver: This stipulation may be waived if, in cooperation with the State wildlife agency, it is determined that the site has been permanently abandoned or unoccupied for a minimum of 5 years.</p>
No surface disturbing or otherwise disruptive activities in GRSG winter habitat from December 15 through March 14. Richfield Field Office	<p>Exception: An exception could be granted if surveys determine that the GRSG winter habitat is not occupied, and that snow depths in the area allow continued GRSG use. An exception may also be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action can be avoided, sufficiently minimized, or adequately mitigated.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if it is determined the habitat no longer exists or has been destroyed.</p>
In order to protect important GRSG winter habitat, exploration, drilling, and other development activity will be allowed only during the period from March 1 to November 30. This limitation does not apply to maintenance and operation of producing wells. Salt Lake Field Office	<p>Exception: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM.</p> <p>Modification: None</p> <p>Waiver: None</p>

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface occupancy in areas outside of GRSG habitat but within one mile of an occupied lek, when the lek is located within PHMA.	<p>Purpose: To protect occupied GRSG leks and the life-history needs of GRSG in proximity of the lek from habitat loss and GRSG populations from disturbance inside and out of priority habitat areas.</p> <p>Exception: Exceptions to the NSO could be granted by the Authorized Officer if the following conditions are met:</p> <ul style="list-style-type: none"> • access through GRSG habitat to the activity in the non-habitat area occurs only on existing routes, and no new roads, maintenance, or improvements to roads would be required within GRSG habitat; • no activity would be permitted or authorized if it would establish a valid existing right that would subsequently require construction of new routes within GRSG habitat for access; • access to the activity for construction, maintenance, etc. would be required to avoid applicable GRSG sensitive seasons (i.e., breeding, brood-rearing, winter) and time periods (2-hours before sunrise to 2-hours after sunrise near leks during breeding season); • the non-habitat does not provide important connectivity between habitats; • impacts to areas adjacent to PHMA can be reduced or eliminated (e.g., sound, tall structures). <p>Modification: None</p> <p>Waiver: A waiver may be granted if the lek is determined to be unoccupied as determined by UDWR.</p>
No surface occupancy occupied habitat within 4 miles of a lek located within PHMA.	<p>Purpose: To protect occupied GRSG leks and associated seasonal habitat, life-history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss and GRSG populations from disturbance inside priority habitat areas and connectivity habitat areas.</p> <p>Exception: Exceptions to the NSO could be granted by the Authorized Officer if the following conditions are met:</p> <ul style="list-style-type: none"> • access through GRSG habitat to the activity in the non-habitat area occurs only on existing routes, and no new roads, maintenance, or improvements to roads would be required within GRSG habitat; • no activity would be permitted or authorized if it would establish a valid existing right that would subsequently require construction of new routes within GRSG habitat for access; • access to the activity for construction, maintenance, etc. would be required to avoid applicable GRSG sensitive seasons (i.e.,

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>breeding, brood-rearing, winter) and time periods (2-hours before sunrise to 2-hours after sunrise near leks during breeding season);</p> <ul style="list-style-type: none"> the non-habitat does not provide important connectivity between habitats; impacts to areas adjacent to PHMA can be reduced or eliminated (e.g., sound, tall structures). <p>Modification: None</p> <p>Waiver: A waiver may be granted if the lek is determined to be completely abandoned, destroyed or occur outside the initial identified area, as determined by the BLM and UDWR.</p>
<p>No surface disturbance allowed between November 15 – March 14 in winter habitat.</p>	<p>Purpose: To seasonally protect GRSG winter habitat areas from disruptive activities within priority habitat areas.</p> <p>Exception: Exceptions to the seasonal restrictions could be granted by the Authorized Officer under the following conditions:</p> <ul style="list-style-type: none"> if the project plan and NEPA document demonstrate the project would not impair the function of seasonal habitat, life-history, or behavioral needs of GRSG; if the potential short-term impacts from vegetation treatment are off-set by long-term improvement to the quantity or quality of habitat (e.g., seedings, juniper reduction). <p>Modification: The Authorized Officer may modify the seasonal restrictions and use restrictions under the following conditions:</p> <p>if portions of the area do not include winter habitat (lacking the principle habitat components of winter GRSG habitat) or are outside the current defined winter GRSG areas, as determined by the BLM/Forest Service in discussion with the UDWR, and indirect impacts would be mitigated;</p> <p>if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted.</p> <p>Waiver: None</p>
<p>No surface disturbance allowed between April 15 – July 15 in GRSG brood-rearing habitat.</p>	<p>Purpose: To seasonally protect brood-rearing GRSG habitat from disruptive activity.</p> <p>Exception: Exceptions to the seasonal restrictions could be granted by the Authorized Officer under the following conditions:</p> <ul style="list-style-type: none"> if surveys determine that the lek is not active that year (based on

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>UDWR lek survey protocol), and the proposed activity will not result in a permanent disturbance and will not take place beyond the season being excepted;</p> <ul style="list-style-type: none"> • if surveys determine that the lek is no longer occupied, and the proposed activity will not take place beyond the season being excepted; • if the project plan and NEPA document demonstrate the project would not impair the function of seasonal habitat, life-history, or behavioral needs of GRSG; • if the potential short-term impacts from vegetation treatment are off-set by long-term improvement to the quantity or quality of habitat (e.g., seedings, juniper reduction). <p>Modification: The Authorized Officer may modify the seasonal restrictions under the following conditions:</p> <ul style="list-style-type: none"> • if portions of the area do not include habitat (lacking the principle habitat components of GRSG habitat) or are outside the defined area, as determined by the BLM/Forest Service in discussion with the State of Utah, and indirect impacts would be mitigated; • if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted. <p>Waiver: None</p>
<p>No surface disturbance allowed between Feb. 15 – June 15, within breeding and nesting habitat (4-miles of a lek).</p>	<p>Purpose: To seasonally protect breeding and nesting GRSG habitat from disruptive activity in priority habitat areas.</p> <p>Exception: Exceptions to the seasonal restrictions could be granted by the Authorized Officer under the following conditions:</p> <ul style="list-style-type: none"> • if surveys determine that the lek is not active that year (based on UDWR lek survey protocol), and the proposed activity will not result in a permanent disturbance and will not take place beyond the season being excepted; • if surveys determine that the lek is no longer occupied, and the proposed activity will not take place beyond the season being excepted; • if the project plan and NEPA document demonstrate the project would not impair the function of seasonal habitat, life-history, or behavioral needs of GRSG; • if the potential short-term impacts from vegetation treatment are off-set by long-term improvement to the quantity or quality

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>of habitat (e.g., seedings, juniper reduction).</p> <p>Modification: The Authorized Officer may modify the seasonal restrictions under the following conditions:</p> <ul style="list-style-type: none"> • if portions of the area do not include habitat (lacking the principle habitat components of GRSG habitat) or are outside the defined area, as determined by the BLM/ Forest Service in discussion with the State of Utah, and indirect impacts would be mitigated; • if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted. <p>Waiver: None</p>
<p>Surface occupancy or use within the 4-mile buffer of a lek outside of PHMA is subject to the following operating constraints:</p> <p>The development meets noise restrictions (noise at occupied leks does not exceed 10 decibels above ambient sound levels from 2 hours before to 2 hours after sunrise and sunset during breeding season) and the development meets tall structure restrictions (a tall structure is any man-made structure that has the potential to disrupt lekking or nesting birds by creating new perching/nesting opportunities and/or decrease the use of an area; a determination as to whether something is considered a tall structure would be determined based on local conditions such as vegetation or topography).</p>	<p>Purpose: To protect occupied GRSG leks and the life-history needs of GRSG of the lek from habitat loss and populations from disturbance outside of PHMA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: A waiver may be granted if the lek is determined to be unoccupied as determined by UDWR.</p>
<p>Surface occupancy or use in occupied habitat is subject to the following operating constraints:</p> <p>The development meets noise</p>	<p>Purpose: To protect occupied GRSG leks and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance in PHMA.</p>

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>restrictions (noise at occupied leks does not exceed 10 decibels above ambient sound levels from 2 hours before to 2 hours after sunrise and sunset during breeding season).</p> <p>The development meets tall structure restrictions (a tall structure is any man-made structure that has the potential to disrupt lekking or nesting birds by creating new perching/nesting opportunities and/or decrease the use of an area; a determination as to whether something is considered a tall structure would be determined based on local conditions such as vegetation or topography).</p>	<p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Operators must submit a site-specific plan of development for roads, wells, pipelines and other infrastructure prior to any development being authorized; this plan should outline how development on the lease will limit habitat fragmentation before surface occupancy or use is allowed in habitat.</p>	<p>Purpose: To protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use is not allowed within PHMA unless the area has not exceeded the 5 percent disturbance limit.</p>	<p>Purpose: To protect PHMAs and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA.</p> <p>Exception: Small localized disturbance may exceed 5 percent if discrete disturbances are consolidated and localized and it is shown through an environmental compliance document that the total areas with discrete disturbances does not exceed 5 percent in the identified disturbance calculation area and that the consolidation of the disturbance in the area would be beneficial to the GRSG population. This could result in small areas where existing and proposed disturbances exceed 5 percent if total disturbances in the identified disturbance calculation area equals or is less than 5 percent.</p>

Table H.2
Alternative D – Priority Habitat Management Area (PHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use is subject to the following special operating constraints: Development is required to incorporate all design features identified in Appendix D (of the NTT Report).</p>	<p>Purpose: To protect occupied GRSG habitat and the life-history needs of GRSG from habitat loss, fragmentation and to limit GRSG habitat disturbance.</p> <p>Exception: An exception to this stipulation could be granted by the Authorized Officer unless one of the following is demonstrated through an environmental compliance document associated with the specific project:</p> <ul style="list-style-type: none"> • A specific design feature is documented to not be applicable to the site-specific conditions of the project/activity; • A proposed design feature or best management practice is determined to provide equal or better protection for GRSG or its habitat; • Analyses conclude that following a specific feature will provide no more protection to GRSG or its habitat than not following it, for the specific project being proposed. <p>Modification: None</p> <p>Waiver: None</p>

Table H.3
Alternative D – General Habitat Management Area (GHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria General
Habitat Management Areas – Alternative D

Stipulation	Stipulation Description
<p>No surface disturbance within one mile of an occupied lek located within GHMA.</p> <p>This stipulation applies whether or not the area is within GRSG habitat.</p>	<p>Purpose: To protect occupied GRSG leks and the life-history needs of GRSG in proximity of the lek from habitat loss and GRSG populations from disturbance inside and out of GHMA.</p> <p>Exception: The Authorized Officer may grant an exception in coordination with UDWR during project implementation and if best management practices (e.g., anti-perch devices for raptors, etc.) are implemented.</p> <p>Modification: None</p> <p>Waiver: This stipulation within GHMA could be waived, except for within the seasonal stipulations, if off-site mitigation coordinated with the Authorized Officer and the State of Utah is successfully completed in PHMA.</p>
<p>No surface disturbance allowed between November 15 – March 14.</p>	<p>Purpose: To seasonally protect winter GRSG habitat from disruptive activity in GHMA.</p> <p>Exception: Exceptions to the seasonal restrictions could be granted Authorized Officer under the following conditions:</p> <ul style="list-style-type: none"> • if the project plan and NEPA document demonstrate the project would not impair the function of seasonal habitat, life-history, or behavioral needs of GRSG; • if the potential short-term impacts from the action are off-set by long-term improvement to the quantity or quality of habitat (e.g., seedings, juniper reduction) <p>Modification: The Authorized Officer may modify the seasonal restrictions under the following conditions:</p> <ul style="list-style-type: none"> • if portions of the area do not include habitat (lacking the principle habitat components of GRSG habitat) or are outside the current defined area, as determined by the BLM/Forest Service in discussion with the State of Utah, and indirect impacts would be mitigated; • if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted. <p>Waiver: The Authorized Officer may waive the timing limitation if off-site mitigation is successfully completed in PHMA, following discussion with BLM/Forest Service and the State of Utah. Even in situations where use restrictions are waived in GHMA, to avoid direct disturbance and/or mortality of birds, disturbances would not be approved during the sensitive seasons.</p>

Table H.3
Alternative D – General Habitat Management Area (GHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria General
Habitat Management Areas – Alternative D

Stipulation	Stipulation Description
No surface disturbance allowed between April 15 – July 15 in brood-rearing habitat.	<p>Purpose: To seasonally protect brood-rearing GRSG habitat from disruptive activity in GHMA.</p> <p>Exception: Exceptions to the seasonal restrictions and use restrictions could be granted Field Manager/Forest Supervisor under the following conditions:</p> <ul style="list-style-type: none"> • if surveys determine that the lek is not active that year (based on UDWR lek survey protocol), and the proposed activity will not take place beyond the season being excepted; • if surveys determine that the lek is no longer occupied, and the proposed activity will not take place beyond the season being excepted; • if the project plan and NEPA document demonstrate that impacts from the proposed action can be adequately mitigated; <p>Modification: Additionally, the Field Manager/Forest Supervisor may modify the seasonal restrictions and use restrictions under the following conditions:</p> <ul style="list-style-type: none"> • if portions of the area do not include habitat (lacking the principle habitat components of brood-rearing GRSG habitat) or are outside the current defined brood-rearing area, as determined by the BLM/Forest Service in discussion with the UDWR, and indirect impacts would be mitigated; • if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted. <p>Waiver: None.</p>
No surface disturbance allowed between Feb. 15 – June 15.	<p>Purpose: To seasonally protect breeding and nesting GRSG habitat from disruptive activity in GHMA.</p> <p>Exception: Exceptions to the seasonal restrictions and use restrictions could be granted Field Manager/Forest Supervisor under the following conditions:</p> <ul style="list-style-type: none"> • if surveys determine that the lek is not active that year (based on UDWR lek survey protocol), and the proposed activity will not take place beyond the season being excepted; • if surveys determine that the lek is no longer occupied, and the proposed activity will not take place beyond the season being excepted; • if the project plan and NEPA document demonstrate that

Table H.3
Alternative D – General Habitat Management Area (GHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria General
Habitat Management Areas – Alternative D

Stipulation	Stipulation Description
	<p>impacts from the proposed action can be adequately mitigated;</p> <p>Modification: Additionally, the Field Manager/Forest Supervisor may modify the seasonal restrictions and use restrictions under the following conditions:</p> <ul style="list-style-type: none"> • if portions of the area do not include habitat (lacking the principle habitat components of GRSG habitat) or are outside the current defined breeding and nesting habitat area, as determined by the BLM/Forest Service in discussion with the UDWR, and indirect impacts would be mitigated; • if documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) reflect a need to change the given dates in order to better protect when GRSG use a given area, and the proposed activity will not take place beyond the season being excepted. <p>Waiver: None</p>
<p>Surface occupancy or use in occupied habitat is subject to the following operating constraints:</p> <p>The activity meets noise restrictions (noise at occupied leks does not exceed 10 decibels above ambient sound levels from 2 hours before to 2 hours after sunrise and sunset during breeding season).</p> <p>The activity meets permanent (structure persists through subsequent breeding season) tall structure restrictions (a tall structure is any man-made structure that has the potential to disrupt lekking or nesting birds by creating new perching/nesting opportunities and/or decrease the use of an area; a determination as to whether something is considered a tall structure would be determined based on local conditions such as vegetation or topography).</p>	<p>Purpose: To protect occupied GRSG leks and the life-history needs of GRSG of the lek from habitat loss and GRSG populations from disturbance outside of GHMA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: Application of the above use restrictions and meeting objectives within GHMA may be waived by the Field Manager/Forest Supervisor if off-site mitigation is successfully completed in PHMA or opportunity areas, following discussion with BLM/Forest Service and UDWR. Even in situations where use restrictions are waived in general habitat, to avoid direct disturbance and/or mortality of birds, disturbances will not be approved during the sensitive seasons.</p>

Table H.3
Alternative D – General Habitat Management Area (GHMA)
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria General
Habitat Management Areas – Alternative D

Stipulation	Stipulation Description
Surface disturbing activities within GHMA would require coordination with UDWR during project implementation and implementation of best management practices (e.g., anti-perch devices for raptors, etc.).	<p>Purpose: To minimize disturbance to GRSG within GHMA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: Application of the above use restrictions and meeting objectives within general habitat may be waived by the Field Manager/Forest Supervisor if off-site mitigation is successfully completed in priority habitat or opportunity areas, following discussion with BLM/Forest Service and UDWR. Even in situations where use restrictions are waived in general habitat, to avoid direct disturbance and/or mortality of birds, disturbances will not be approved during the sensitive seasons.</p>

Table H.4
Alternative E1 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface occupancy within 1 mile of an occupied lek if the lek is located within a State of Utah Sage-Grouse Management Area (SGMA).	<p>Purpose: To minimize disturbance to breeding and nesting GRSG.</p> <p>Exception: If the Authorized Officer may grant an exception if the disturbance or activity is not visible to the GRSG using the lek or if there is no other feasible placement for that activity. While the NSO stipulation may be excepted, minimization and/or mitigation would be required for development in these areas.</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use in occupied habitat is subject to the following operating constraints:</p> <p>Under certain circumstances, a general limit on new permanent disturbance of 5 percent of habitat on state or federally managed lands within any particular State of Utah SGMA.</p>	<p>Purpose: The fundamental purpose of this provision is to limit the effects of a large amount of disturbance to the existing habitat or activities of the GRSG</p> <p>Exception: If the SGMA crosses a county line then the 5 percent limitation would be apportioned to each county in proportion to the total amount of GRSG within the larger area.</p> <p>Modification: If it should become sufficiently apparent through an interagency review effort coordinated by Utah's Public Lands Policy Coordinating Office to insure consistency in interpretation throughout the state that an accurate determination of the base for the limitation calculation is not feasible, then the interagency coordination effort may propose and seek approval for an alternative measurement of, or technique to measure, the cumulative effects of disturbance.</p> <p>Waiver: None</p>
<p>Surface occupancy or use in winter habitat is subject to the following operating constraints:</p> <p>Avoid activities (construction, vehicle noise, etc.) that will disturb GRSG use of the seasonal area from November 15 – March 15.</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the seasonal use of GRSG winter habitat.</p> <p>Exception: The specific time and distance determinations for the winter seasonal stipulation would be based on site-specific conditions, in coordination with the local UDWR biologist.</p> <p>Modification: None.</p> <p>Waiver: None</p>
<p>Surface occupancy or use in nesting and brood-rearing areas are subject to the following operating constraints:</p> <p>Avoid activities (construction, vehicle noise, etc.) that will disturb GRSG use of the seasonal area from April 1 – Aug. 15.</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the seasonal use of GRSG nesting and brood-rearing areas.</p> <p>Exception: The specific time and distance determinations for the nesting and brood-rearing seasonal stipulation would be based on site-specific conditions, in coordination with the local UDWR biologist.</p> <p>Modification: None.</p> <p>Waiver: None</p>

Table H.4
Alternative E1 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>Surface occupancy or use in the area of the lek is subject to the following operating constraints:</p> <p>Avoid activities (construction, vehicle noise, etc.) that will disturb GRSG use of the seasonal area from Feb. 15 – May 15.</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the seasonal use of GRSG lek.</p> <p>Exception: The specific time and distance determinations for the seasonal stipulation for the GRSG lek would be based on site-specific conditions, in coordination with the local UDWR biologist.</p> <p>Modification: None.</p> <p>Waiver: None</p>
<p>Surface occupancy or use in winter habitat is subject to the following operating constraints:</p> <p>Avoid disturbance within the area, if possible. Project proponents must demonstrate why avoidance is not possible.</p> <p>If avoidance is not possible, minimize as appropriate to the area. Minimization provisions include, for example, the location of development in habitat of least importance, or by locating development to take advantage of topographic screening.</p> <p>If minimization is not sufficient, mitigation is required (see mitigation section below).</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to GRSG winter habitat.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use in nesting and brood-rearing areas are subject to the following operating constraints:</p> <p>Avoid disturbance within these areas, if possible. Project proponents must demonstrate why avoidance is not possible.</p> <p>If avoidance is not possible, use minimization as appropriate to the area (e.g., try to minimize effects by locating development in habitat of the least importance, take advantage of topographic features to screen the disturbance, or maintaining and enhancing wet</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance GRSG nesting and brood-rearing areas.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>

Table H.4
Alternative E1 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>meadow and riparian vegetation to provide food and shelter).</p> <p>If minimization is not sufficient, mitigation is required.</p> <p>Employ noise stipulations which allow no more than 10 dB rise above ambient noise levels at the edge of the lek.</p>	
<p>Surface occupancy or use in the area of a lek is subject to the following operating constraints:</p> <p>Avoid disturbance within this area, if possible. Project proponents must demonstrate why avoidance is not possible.</p> <p>If avoidance is not possible, use minimization as appropriate to the area.</p> <p>If minimization is not sufficient, mitigation is required.</p> <p>New permanent disturbance, including structures, fences, and buildings, should not be located within the lek itself.</p> <p>No permanent disturbance within one mile of the lek, unless it is not visible to the GRSG using the lek.</p> <p>Fences should not be located on or adjacent to leks where bird collisions would be expected to occur. If required, the construction of any fences near the lek should follow the standards identified in the NRCS fence collision risk tool (NRCS/CEAP Conservation Insight Publication “Applying the Sage Grouse Fence Collision Risk Tool to Reduce Bird Strikes”).</p> <p>A disturbance outside the lek should not produce noise which rises more than 10 dB above the</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the seasonal use of GRSG leks.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>

Table H.4
Alternative EI Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>background level at the edge of the lek during breeding season.</p> <p>Implement time-of-day stipulations during the season when the lek is occupied (e.g., no activity from 2 hours before sunrise to 2 hours after sunrise).</p>	
<p>Surface occupancy or use in the other GRSG habitats are subject to the following operating constraints:</p> <p>Avoid disturbance in the area if possible. Project proponents must demonstrate why avoidance is not possible.</p> <p>If avoidance is not possible, minimize as appropriate to the area. Minimization provisions include, for example, the location of development in habitat of least importance, or by locating development to take advantage of topographic screening.</p> <p>If minimization is not sufficient, mitigation is required.</p> <p>Mitigation must produce lands capable of supporting GRSG as habitat before the proposed disturbance occurs, though birds do not need to be using the mitigated area. The proponent of the disturbance must demonstrate that the mitigation conditions have been met.</p> <p>Manage the lands to avoid barriers to migration, if applicable.</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the GRSG habitat within SGMAs but which is not part of the lek, nesting or wintering areas.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use in GRSG habitats are subject to the following operating constraints:</p> <p>New permanent disturbance, including structures, fences, and</p>	<p>Purpose: The purpose of this stipulation is to limit disturbance to the GRSG habitat within SGMAs but which is not part of the lek, nesting or wintering areas.</p> <p>Exception: None</p>

Table H.4
Alternative E1 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>buildings, should not be located within the occupied lek itself.</p> <p>No permanent disturbance within 1 mile of an occupied lek, unless it is not visible to the GRSG using the lek.</p> <p>New permanent tall structures should not be located within one mile of the lek, if visible by the birds within the lek.</p> <p>A disturbance outside the lek should not produce noise which rises more than 10 dB above the ambient (background) level at the edge of the lek during breeding season.</p> <p>Apply time-of-day stipulations when the lek is active (e.g., no activity from 2 hours before sunrise to 2 hours after sunrise).</p>	<p>Modification: None</p> <p>Waiver: None</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>Occupied GRSG leks inside priority habitat areas and connectivity habitat areas. This area encompasses GRSG leks inside priority habitat areas and connectivity habitat areas. No surface occupancy or use is allowed within a 0.6 mile radius of the perimeter of occupied GRSG leks inside priority habitat areas and connectivity habitat areas.</p>	<p>Purpose: To protect occupied GRSG leks and associated seasonal habitat, life-history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss and GRSG populations from disturbance inside priority habitat areas and connectivity habitat areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in consultation with the Wyoming Game and Fish Department (WGFD), feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be GRSG priority or connectivity habitat or GRSG are no longer a Forest Service sensitive or special status species and are not listed by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG priority habitat areas. This area encompasses GRSG priority habitat areas. Surface occupancy or use will be restricted to no</p>	<p>Purpose: To protect GRSG connectivity areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>more than an average of one disturbance location per 640 acres, and the cumulative value of all applicable surface disturbances, existing or future, must not exceed 5 percent of the DDCT area, as described in the Disturbance Density Calculation Tool (DDCT) Manual.</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG priority habitat. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within the priority habitat or surface disturbance created by other land users. The BLM may require the lessee or operator to enter into a unit agreement or drilling easement to facilitate the equitable development of this and surrounding leases.</p>	<p>proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to GRSG habitat and populations. The Forest Service can and does grant exceptions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be GRSG connectivity habitat or GRSG are no longer a Forest Service sensitive or special status species and are not listed by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG connectivity areas. This area encompasses GRSG connectivity areas. The cumulative value of all applicable surface disturbances (existing or future, and not limited to fluid mineral disturbances) must not exceed an average of 5 percent of the sagebrush habitat mapped within each Forest GIS database per 640</p>	<p>Purpose: To protect GRSG connectivity areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to GRSG habitat and</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>acres, as described in the Disturbance Density Calculation Tool (DDCT) Manual.</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG priority habitat. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within the priority habitat or surface disturbance created by other land users. The Forest Service may require the lessee or operator to enter into a unit agreement or drilling easement to facilitate the equitable development of this and surrounding leases.</p>	<p>populations. The Forest Service can and does grant exceptions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be GRSG connectivity habitat or GRSG are no longer a Forest Service sensitive or special status species and are not listed by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Occupied GRSG leks in priority habitat areas or connectivity habitat areas. This area encompasses occupied GRSG leks in priority habitat areas or connectivity habitat areas. No disruptive activity is allowed during 6:00 p.m. – 8:00 a.m., March 1 – May 15, within a 0.6 mile radius of the perimeter of occupied GRSG leks in priority habitat areas or connectivity habitat areas.</p>	<p>Purpose: To seasonally protect occupied GRSG leks from disruptive activity in priority habitat areas or connectivity habitat areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be GRSG priority or connectivity habitat or are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Occupied GRSG leks in priority habitat areas or connectivity habitat areas. This area encompasses occupied GRSG leks in priority habitat areas or connectivity habitat areas. Noise levels may not exceed 10 dBA above ambient noise during 6:00 p.m. – 8:00 a.m., March 1 – May 15, within a 0.6 mile-radius of the perimeter of occupied GRSG leks in priority habitat areas or connectivity habitat areas.</p>	<p>Purpose: To seasonally protect occupied GRSG leks from disruptive activity in priority habitat areas or connectivity habitat areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be GRSG priority or connectivity habitat or are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components of GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG nesting and early brood-rearing habitats inside priority habitat areas. This area encompasses GRSG nesting and early brood-rearing habitats inside priority habitat areas. No surface use is allowed during March 15 – June 30, within GRSG nesting and early brood-rearing habitats inside priority habitat areas, regardless of distance from the lek and independent of habitat suitability. This stipulation does not apply to operation and maintenance of production facilities.</p>	<p>Purpose: To seasonally protect GRSG nesting and early brood-rearing habitats from disruptive activities inside priority habitat areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be GRSG priority habitat or are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components of GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG nesting and early brood-rearing habitat within connectivity habitat areas. This area encompasses GRSG nesting and early brood-rearing habitat within connectivity habitat areas. No surface use is allowed during March 15 – June 30, in nesting and early brood-rearing habitats (independent of habitat suitability) inside connectivity habitat areas, within 4 miles of an occupied lek. This stipulation does not apply to operation and maintenance of production facilities.</p>	<p>Purpose: To seasonally protect GRSG nesting and early brood-rearing habitats (independent of habitat suitability) inside connectivity habitat areas from disruptive activities, within 4 miles of an occupied lek.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be GRSG connectivity habitat or are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components of GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG nesting and early brood-rearing habitat outside priority habitat areas and connectivity habitat areas. This area encompasses GRSG nesting and early brood-rearing habitat outside priority habitat areas and connectivity habitat areas. No surface use is allowed during March 15 – June 30, in GRSG nesting and early brood-rearing habitats outside priority habitat areas and connectivity habitat areas, within 2 miles of an occupied lek. This stipulation does not apply to operation and maintenance of production facilities.</p>	<p>Purpose: To seasonally protect GRSG nesting and early brood-rearing habitats from disruptive activities outside priority habitat areas and connectivity habitat areas, within 2 miles of an occupied lek.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
	<p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components of GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG winter concentration areas. This area encompasses GRSG winter concentration areas. No surface use is allowed during December 1 – March 14, within GRSG winter concentration areas in priority habitat, and outside priority habitat when supporting wintering GRSG that attend leks within priority habitat. This stipulation does not apply to operation and maintenance of production facilities.</p>	<p>Purpose: To seasonally protect GRSG winter concentration areas from disruptive activities.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of GRSG during the period of concern. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in consultation with the WGFD, feels that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in consultation with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG winter habitat and that these ranges no</p>

Table H.5
Alternative E2 Fluid Minerals Stipulations and
Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	longer warrant consideration as components of GRSG winter habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)

Table H.6
BLM Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface occupancy within sagebrush focal areas (SFA).	<p>Purpose: To protect GRSG habitat from activity in SFA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
No surface occupancy within PHMA.	<p>Purpose: To protect GRSG habitat from activity in PHMA.</p> <p>Exception: The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action:</p> <ul style="list-style-type: none"> i. Would not have direct, indirect, or cumulative effects on GRSG or its habitat; or, ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG. The conservation gain must include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. <p>The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly.</p> <p>Modification: None</p> <p>Waiver: None</p>
Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) Biologically Significant Units (total PHMA area associated with a GRSG population area) and 2) within the proposed project analysis area.	<p>Purpose: To protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA. This would be implemented as a lease notice associated with new leases, in addition to the NSO stipulation. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>Exception: None</p> <p>Modification: None</p>

Table H.6
BLM Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	Waiver: None
In PHMA, limit the density of energy and mining facilities during project authorization to an average of one energy/mineral facility per 640 acres.	<p>Purpose: To protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA. This would be implemented as a lease notice associated with new leases, in addition to the NSO stipulations. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>Surface occupancy or use within the PHMA is subject to the following operating constraints:</p> <ul style="list-style-type: none"> • Limit noise from discretionary activities (during construction, operation, or maintenance) will not exceed 10 decibels above ambient sound levels at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); support the establishment of ambient baseline noise levels for PHMA habitat area leks. • Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations. 	<p>Purpose: Protecting GRSG from auditory disturbance associated with fluid mineral developments.</p> <p>Exception: None</p> <p>Modification: As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles.</p> <p>Waiver: None</p>
<p>Surface occupancy or use within the PHMA is subject to the following operating constraints:</p> <ul style="list-style-type: none"> • Limit the placement of permanent tall structures within PHMA breeding and nesting habitats. • For the purposes of this restriction, a tall structure is any 	<p>Purpose: To minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>Exception: None</p> <p>Modification: None</p>

Table H.6
BLM Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors, ravens) that may naturally be absent, or that decreases the use of an area by PHMA. A determination as to whether something is considered a tall structure would be made based on local conditions such as existing vegetation or topography.	Waiver: None
No surface disturbance allowed between Feb 15 – June 15, in PHMA GRSG breeding, nesting, and early brood-rearing habitat.	<p>Purpose: To seasonally protect GRSG within PHMA from disruptive activity during breeding, nesting and early brood-rearing. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>Exception: None</p> <p>Modification: Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with UDWR biologists.</p> <p>Waiver: None</p>
No surface disturbance allowed between April 15 – August 15, in PHMA GRSG brood-rearing habitat.	<p>Purpose: To seasonally protect GRSG within PHMA from disruptive activity during brood-rearing. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>Exception: None</p> <p>Modification: Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with UDWR biologists.</p> <p>Waiver: None</p>
No surface disturbance allowed between Nov 15 – March 15, in PHMA GRSG winter habitat.	<p>Purpose: To seasonally protect GRSG within PHMA from disruptive activity during the winter season. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p>

Table H.6
BLM Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>Exception: None</p> <p>Modification: Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with UDWR biologists.</p> <p>Waiver: None</p>
<p>Areas outside of PHMA but within 4 miles of a lek that is located within PHMA will be subject to the following operating constraints:</p> <ul style="list-style-type: none"> • Limit noise from discretionary activities (during construction, operation, or maintenance) so it will not exceed 10 decibels above ambient sound levels at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); support the establishment of ambient baseline noise levels for PHMA habitat area leks. • Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations. 	<p>Purpose: Protecting GRSG from indirect disturbance near leks within PHMA.</p> <p>Exception: None</p> <p>Modification: As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles.</p> <p>Waiver: None</p>
<p>Areas outside of PHMA but within 4 miles of a lek that is located within PHMA will be subject to the following operating constraints:</p> <ul style="list-style-type: none"> • Limit the placement of permanent tall structures within PHMA breeding and nesting habitats. • For the purposes of this restriction, a tall structure is any 	<p>Purpose: To minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>

Table H.6
BLM Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors, ravens) that may naturally be absent, or that decreases the use of an area by PHMA. A determination as to whether something is considered a tall structure would be made based on local conditions such as existing vegetation or topography.	

Table H.7
US Forest Service – Utah Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
No surface disturbance within sagebrush focal areas (SFA).	<p>Purpose: To protect GRSG habitat from activity in SFA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
No surface occupancy within PHMA	<p>Purpose: To protect GRSG habitat from activity in PHMA.</p> <p>Exception: The Authorized Officer with concurrence with the with unanimous concurrence from a team of agency GRSG experts from the USFWS, Forest Service, and UDWR if:</p> <ul style="list-style-type: none"> • There would be no direct, indirect, or cumulative effects to GRSG or their habitats or • Granting the exception provides an alternative to a similar action occurring on a nearby parcel and • The exception provides a clear net conservation gain to GRSG. <p>Modification: None</p> <p>Waiver: None</p>
In PHMA and SFA, do not issue new discretionary written authorizations unless all existing discrete anthropogenic disturbances cover less than 3 percent of the total GRSG habitat within the Biologically Significant Unit and the proposed project analysis area, regardless of ownership and the new use will not cause exceedance of the 3 percent cap	<p>Purpose: To protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
During lekking (March 1 to April 30) surface disturbing and disruptive activities, including noise at 10 dB above ambient (not to exceed 20-24 dB) measured at the perimeter of an occupied lek, should be restricted to lekking birds from 6:00 pm to 9:00 am within a buffer distance of 3.1 miles.	<p>Purpose: Protecting GRSG from disturbance.</p> <p>Exception: None</p> <p>Modification: As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area, or GRSG are no longer a Forest</p>

Table H.7
US Forest Service – Utah Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation see Forest Service Manuals 1950 and 2820.)
No surface disturbing or disruptive activities within nesting habitat within PHMA during March 1 to June 15 (breeding and nesting seasons).	<p>Purpose: To seasonally protect GRSG within PHMA from disruptive activity during breeding, nesting and early brood-rearing.</p> <p>Exception: None</p> <p>Modification: Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with UDWR biologists (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation see Forest Service Manuals 1950 and 2820.)</p>
No new tall structures that would provide perching/nesting opportunities for avian predators within 2.0 miles of the perimeter of a lek that would decrease the use of breeding and nesting habitat within PHMA.	<p>Purpose: To protect breeding and nesting GRSG from avian predators and the potential disturbance caused from tall structures.</p> <p>Exception: The Authorized Officer may grant an exception if the action is determined, through an environmental review, that the presence of a tall structure would not impact the GRSG breeding or nesting habitat seasonally (For guidance on the use of this stipulation see Forest Service Manuals 1950 and 2820.).</p> <p>Modification: The Authorized Officer may grant an exception if through an environmental review it is determined that the action, as proposed or the project as conditioned, would not impair the function or utility of the PHMA or the subsequent life-history, or behavioral needs of the GRSG in the area due to local conditions such as vegetation or topography (For guidance on the use of this</p>

Table H.7
US Forest Service – Utah Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>stipulation see Forest Service Manuals 1950 and 2820.).</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation see Forest Service Manuals 1950 and 2820.)</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>GRSG designated core areas. This area encompasses GRSG designated core areas. Surface occupancy or use will be restricted to no more than an average of three energy production locations and/or transmission structures per 640 acres, and the cumulative value of all applicable surface disturbances, existing or future, must not result in greater than 9 percent loss of the sagebrush habitat within designated core areas, as mapped on the Field Office Geographic Information System (GIS) database, as described in the Disturbance Density Calculation Tool (DDCT).</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG designated core areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within designated core areas or surface disturbance created by other land users.</p>	<p>Purpose: To protect GRSG designated core areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the 9 percent limit may be granted when additional mitigation is demonstrated to be capable of offsetting the resultant loss to GRSG or their habitats. Energy production locations and transmission structures utilized for this computation are not limited to fluid minerals production and transmission. However, coal production, trona production, buried pipelines, and buried power lines are exempted from this computation. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime-loading/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>GRSG designated core areas. This area encompasses GRSG designated core areas. Surface occupancy or use will be restricted to no more than an average of one disturbance location per 640 acres using the DDCT, and the cumulative value of all applicable surface disturbances, existing or future, must not exceed 5 percent of the DDCT area, as described in the Disturbance Density Calculation Tool.</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG designated core areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within designated core areas or surface disturbance created by other land users.</p>	<p>Purpose: To protect GRSG designated core areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to GRSG habitat and populations. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG connectivity areas. This area encompasses GRSG connectivity areas. The cumulative value of all applicable surface</p>	<p>Purpose: To protect GRSG connectivity areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>disturbances (existing or future, and not limited to fluid mineral disturbances) must not exceed an average of 3 percent - or 19.2 acres (whichever represents the smaller disturbance) - of the sagebrush habitat mapped on the Field Office GIS database per 640 acres, as described in the Disturbance Density Calculation Tool (DDCT).</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG designated connectivity areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within designated connectivity areas or surface disturbance created by other land users.</p>	<p>proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG connectivity areas. This area encompasses GRSG connectivity areas. The cumulative value of all applicable surface disturbances (existing or future) from energy production locations and/or transmission structures must not exceed an average of 9 percent - or 57.6 acres (whichever represents the smaller disturbance) - of the sagebrush</p>	<p>Purpose: To protect GRSG connectivity areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the 9 percent limit may be granted when additional mitigation is demonstrated to be capable of offsetting the resultant loss to GRSG or their habitats. Energy production locations and</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>habitat mapped on the Field Office GIS database per 640 acres, as described in the Disturbance Density Calculation Tool (DDCT).</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG designated connectivity areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within designated connectivity areas or surface disturbance created by other land users.</p>	<p>transmission structures utilized for this computation are not limited to fluid minerals production and transmission. However, coal production, trona production, buried pipelines, and buried power lines are exempted from this computation. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>GRSG connectivity areas. This area encompasses GRSG connectivity areas. The cumulative value of all applicable surface disturbances (existing or future, and not limited to fluid mineral disturbances) must not exceed an average of 5 percent of the sagebrush habitat mapped on the Field Office GIS database per 640</p>	<p>Purpose: To protect GRSG connectivity areas from habitat fragmentation and loss.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to GRSG habitat and</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>acres, as described in the Disturbance Density Calculation Tool (DDCT).</p> <p>This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing fluid minerals within GRSG designated connectivity areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on federal, state, or private lands within the designated connectivity areas or surface disturbance created by other land users.</p>	<p>populations. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be GRSG connectivity habitat, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Occupied GRSG leks inside designated core areas and connectivity areas. This area encompasses occupied GRSG leks inside designated core areas and connectivity areas. No surface occupancy or use is allowed within a 4 mile radius of the perimeter of occupied GRSG leks inside designated core areas and connectivity areas, as mapped on the Field Office GIS database.</p>	<p>Purpose: To protect occupied GRSG leks and associated seasonal habitat, life-history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss and GRSG populations from disturbance inside designated core areas and connectivity areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>Occupied GRSG leks inside designated core areas and connectivity areas. This area encompasses occupied GRSG leks inside designated core areas and connectivity areas. No surface occupancy or use is allowed within a 0.25-mile radius of the perimeter of occupied GRSG leks inside designated core areas and connectivity areas, as mapped on the Field Office GIS database.</p>	<p>be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area or connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Purpose: To protect occupied GRSG leks and associated seasonal habitat, life-history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss and GRSG populations from disturbance inside designated core areas and connectivity areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>Modification: The Authorized Officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area or connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Occupied GRSG leks inside designated core areas and connectivity habitat areas. This area encompasses occupied GRSG leks inside designated core areas and connectivity areas. No surface occupancy or use is allowed within a 0.6 mile radius of the perimeter of occupied GRSG leks inside designated core areas and connectivity areas, as mapped on the Field Office GIS database.</p>	<p>Purpose: To protect occupied GRSG leks and associated seasonal habitat, life-history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss and GRSG populations from disturbance inside designated core areas and connectivity areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area or connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Occupied GRSG leks outside designated core areas and connectivity areas. This area encompasses occupied GRSG leks outside designated core areas and connectivity areas. No surface occupancy or use is allowed within a 0.25-mile radius of the perimeter of occupied GRSG leks outside designated core areas and connectivity areas, as mapped on the Field Office GIS database.</p>	<p>Purpose: To protect occupied GRSG leks, and associated seasonal habitat, life- history, or behavioral needs of GRSG in proximity to leks, from habitat fragmentation and loss, and GRSG populations from disturbance outside designated core areas and connectivity areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of GRSG. The Forest Service can and does grant exceptions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
	<p>seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a GRSG designated core area or connectivity area, or GRSG are no longer a Forest Service sensitive or special status species or are not listed or determined to be warranted for listing by the USFWS as threatened or endangered under the Endangered Species Act. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
<p>Nesting and early brood-rearing habitats. This area encompasses GRSG nesting and early brood-rearing habitats inside designated core areas, within 2 miles of an occupied lek. No surface disturbing or disruptive activities are allowed during March 15 – June 30.</p>	<p>Purpose: To seasonally protect GRSG nesting and early brood-rearing habitats inside designated core areas, within 2 miles of an occupied lek, from surface disturbing or disruptive activities.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
<p>GRSG breeding, nesting, and early brood-rearing habitats inside designated core areas. This area encompasses GRSG breeding, nesting, and early brood-rearing habitats inside designated core areas. No surface use is allowed during March 1 – June 30 inside designated core areas.</p>	<p>accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a GRSG designated core area, or are incapable of serving the long-term requirements of GRSG nesting habitat and that these ranges no longer warrant consideration as components of GRSG nesting habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <hr/> <p>Purpose: To seasonally protect GRSG breeding, nesting, and early brood-rearing habitats from disruptive activities inside designated core areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
GRSG nesting and early brood-rearing habitat within connectivity areas. This area encompasses GRSG nesting and early brood-rearing habitat within connectivity areas. No surface use is allowed during March 15 – June 30 in breeding, nesting, and early brood-rearing habitats inside connectivity areas, within 2 miles of an occupied lek.	<p>coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a GRSG designated core area, or are incapable of serving the long-term requirements of GRSG breeding, nesting, or early brood-rearing habitat and that these ranges no longer warrant consideration as components of GRSG breeding, nesting, or early brood-rearing habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Purpose: To seasonally protect GRSG breeding, nesting, and early brood-rearing habitat from disruptive activities within connectivity areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a GRSG designated connectivity area, or are incapable</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
GRSG breeding, nesting, and early brood-rearing habitat within connectivity habitat areas and inside Forest Service proposed connectivity habitat areas. This area encompasses GRSG breeding, nesting, and early brood-rearing habitat within connectivity areas. No surface use is allowed during March 1 – June 30 in breeding, nesting, and early brood-rearing habitats (independent of habitat suitability) inside connectivity areas, within 4 miles of an occupied lek.	<p>of serving the long-term requirements of GRSG breeding, nesting, or early brood-rearing habitat and that these ranges no longer warrant consideration as components of GRSG breeding, nesting, or early brood-rearing habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Purpose: To seasonally protect GRSG breeding, nesting, and early brood-rearing habitats (independent of habitat suitability) inside connectivity areas from disruptive activities, within 4 miles of an occupied lek.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a GRSG designated connectivity area, or are incapable of serving the long-term requirements of GRSG breeding, nesting, or early brood-rearing habitat and that these ranges no longer</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
GRSG breeding, nesting, and early brood-rearing habitat outside designated core areas and connectivity areas. This area encompasses GRSG breeding, nesting, and early brood-rearing habitat outside designated core areas and connectivity areas. No surface use is allowed during March 15 – June 30 in breeding, nesting, and early brood-rearing habitats outside designated core areas and connectivity areas, within 2 miles of an occupied lek.	<p>warrant consideration as components of GRSG breeding, nesting, or early brood-rearing habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Purpose: To seasonally protect GRSG breeding, nesting, and early brood-rearing habitats from disruptive activities outside designated core areas and connectivity areas, within 2 miles of an occupied lek.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG breeding, nesting, or early brood-rearing habitat, and that these ranges no longer warrant consideration as components of GRSG breeding, nesting, or early brood-rearing habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
GRSG breeding, nesting, and early brood-rearing habitat outside designated core areas and connectivity areas. This area encompasses GRSG breeding, nesting, and early brood-rearing habitat outside designated core areas and connectivity areas. No surface use is allowed during March 15 – June 30 in GRSG breeding, nesting, and early brood-rearing habitats outside designated core areas and connectivity areas, within 2 miles of an occupied lek.	<p>changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Purpose: To seasonally protect GRSG breeding, nesting, and early brood-rearing habitats from disruptive activities outside designated core areas and connectivity areas, within 2 miles of an occupied lek.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG breeding, nesting, or early brood-rearing habitat, and that these ranges no longer warrant consideration as components of GRSG breeding, nesting, or early brood-rearing habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
GRSG winter concentration areas within designated core areas. This area encompasses GRSG winter concentration areas within designated core areas. No surface use is allowed during November 15 – March 14 in GRSG winter concentration areas within designated core areas.	<p>Purpose: To seasonally protect GRSG winter concentration areas from disruptive activities within designated core areas.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of GRSG during the period of concern. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG winter habitat, and that these ranges no longer warrant consideration as components of GRSG winter habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
GRSG winter concentration areas supporting connectivity populations. This area encompasses GRSG winter	<p>Purpose: To seasonally protect GRSG winter concentration areas supporting connectivity populations from disruptive activities.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
concentration areas supporting connectivity populations. No surface use is allowed during November 15 – March 14 in GRSG winter concentration areas supporting connectivity populations.	<p>proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of GRSG during the period of concern. Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive displays, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG winter habitat, and that these ranges no longer warrant consideration as components of GRSG winter habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>
GRSG winter concentration areas. This area encompasses GRSG winter concentration areas. No surface use is allowed during December 1 – March 14 within GRSG winter concentration areas in designated core areas, and outside designated core areas when supporting wintering GRSG	<p>Purpose: To seasonally protect GRSG winter concentration areas from disruptive activities.</p> <p>Exception: The Authorized Officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not impair the function and suitability of the winter concentration area, or it is determined that the winter concentration area is not occupied by concentrated populations of Greater Sage- Grouse during the period of concern.</p>

Table H.8
US Forest Service – Wyoming Proposed Plan
Fluid Minerals Stipulations and Exception, Modification, and Waiver Criteria

Stipulation	Stipulation Description
that attend leks within designated core areas.	<p>Actions designed to enhance the long-term utility or availability of suitable GRSG habitat may be exempted from this timing limitation. The Forest Service can and does grant exceptions to seasonal restrictions if the Forest Service, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Modification: The Authorized Officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal GRSG activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the GRSG, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p> <p>Waiver: This stipulation may be waived over the entire lease if, in coordination with the state wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of GRSG winter habitat and that these ranges no longer warrant consideration as components of GRSG winter habitat. Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Forest Service Manuals 1950 and 2820.)</p>

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